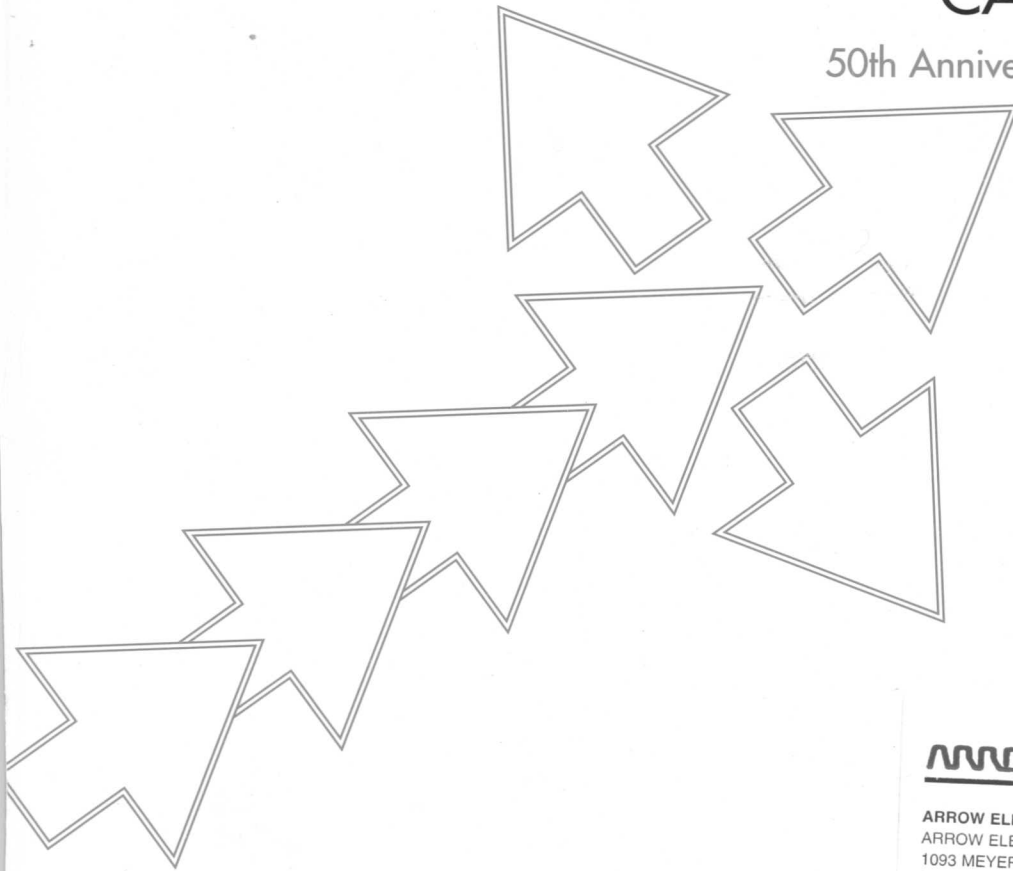


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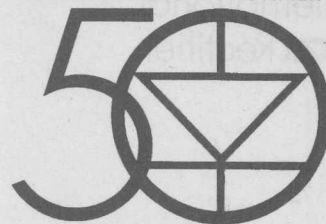


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# Product Digest

*International Rectifier's Shortform Catalog, 50th Anniversary Edition*

March 1997

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## CONTENTS

---

<b>INDEX</b>	<b>B-1</b>
<i>SOLUTIONS FROM INTERNATIONAL RECTIFIER</i>	
<b>POWERTRAIN</b>	<b>C-1</b>
Pentium Pro	C-13
<b>INPUT PRODUCTS</b>	
Diode Bridges	D-1
Standard Recovery Diodes	D-11
Phase Control SCR	D-41
<b>CONTROL</b>	
Control Integrated Circuits	E-1
Microelectronic Relays	E-7
<b>SWITCH</b>	
HEXFET® Power MOSFETs	F-1
IGBTs	F-27
Inverter SCR	F-44
<b>OUTPUT PRODUCTS</b>	
Schottky Diodes	G-1
UltraFast Diodes / HEXFRED™	G-18
Fast Recovery Diodes	G-26
<b>GOVERNMENT and SPACE PRODUCTS</b>	<b>H-1</b>
<b>OTHER INFORMATION</b>	<b>J-1</b>
Case Outlines	J-1
Die Outlines	J-59
Literature	J-65
Sales Office, Representative and Distributor List	J-69

# CONTENTS

INDEX	B-1
SOLUTIONS FROM INTERNATIONAL RECTOR	
CONSTITUTION	C-1
Product Line	C-3
INPUT PRODUCTS	
Desk Address	D-1
Standard Memory Diodes	D-11
Phone Control Box	D-11
CONTROL	
Control Interface Circuit	E-1
Microcomputer System	E-3
SWITCH	
HEAT TREATMENT	F-1
INPUT	F-11
INPUT SFR	F-14
OUTPUT PRODUCTS	
Standard Diodes	G-1
Linear Diodes - MIXED	G-18
Fast Recovery Diodes	G-28
GOVERNMENT AND SPACE PRODUCTS	H-1
OTHER INFORMATION	J-1
Case Studies	J-1
Dr. Gajda	J-2
Library	J-3
Sales Office Representatives and Distributors	J-3



## AlphaNumeric Index

Entries are sorted alphanumerically according to the following:

1. digits precede letters,
2. all characters are treated as strings, i.e. '10F' precedes '6F',
3. entries are read from left to right, i.e. a longer string can precede a shorter string.

Part Number .....	Page	100JB6L .....	D-7	111MT120K .....	D-63	12FL100S05 .....	G-28
12F(R)10 .....	H-1	100JB8L .....	D-7	111MT140K .....	D-63	12FL10S02 .....	G-28
12F(R)100 .....	H-1	104MT100K .....	D-62	111MT160K .....	D-63	12FL10S05 .....	G-28
12F(R)120 .....	H-1	104MT120K .....	D-62	111MT80K .....	D-63	12FL20S02 .....	G-28
12F(R)20 .....	H-1	104MT140K .....	D-62	112MT100K .....	D-63	12FL20S05 .....	G-28
12F(R)40 .....	H-1	104MT160K .....	D-62	112MT120K .....	D-63	12FL40S02 .....	G-28
12F(R)60 .....	H-1	104MT80K .....	D-62	112MT140K .....	D-63	12FL40S05 .....	G-28
12F(R)80 .....	H-1	10BF10 .....	G-25	112MT160K .....	D-63	12FL60S02 .....	G-28
16F(R)10 .....	H-1	10BF20 .....	G-25	112MT80K .....	D-63	12FL60S05 .....	G-28
16F(R)100 .....	H-1	10BF40 .....	G-25	113MT100K .....	D-63	12FL80S05 .....	G-28
16F(R)120 .....	H-1	10BF60 .....	G-25	113MT120K .....	D-63	12TQ035 .....	G-2
16F(R)20 .....	H-1	10BF80 .....	G-25	113MT140K .....	D-63	12TQ035S .....	G-1
16F(R)40 .....	H-1	10BQ015 .....	G-1	113MT160K .....	D-63	12TQ040 .....	G-2
16F(R)60 .....	H-1	10BQ040 .....	G-1	113MT80K .....	D-63	12TQ045 .....	G-2
16F(R)80 .....	H-1	10BQ060 .....	G-1	11DQ03 .....	G-2	12TQ045S .....	G-1
40HF(R)10 .....	H-2	10BQ100 .....	G-1	11DQ04 .....	G-2	130HF120PV .....	D-20
40HF(R)100 .....	H-2	10CTQ150 .....	G-6	11DQ05 .....	G-2	130HF40PV .....	D-20
40HF(R)120 .....	H-2	10CTQ150S .....	G-5	11DQ06 .....	G-2	130HF80PV .....	D-20
40HF(R)140 .....	H-2	10ETS08 .....	D-12	11DQ09 .....	G-2	130MT100K .....	D-9
40HF(R)160 .....	H-2	10ETS08S .....	D-12	11DQ10 .....	G-2	130MT120K .....	D-9
40HF(R)20 .....	H-2	10ETS12 .....	D-12	120NQ035 .....	G-8	130MT140K .....	D-9
40HF(R)40 .....	H-2	10ETS12S .....	D-12	120NQ040 .....	G-8	130MT160K .....	D-9
40HF(R)60 .....	H-2	10ETS16 .....	D-12	120NQ045 .....	G-8	130MT80K .....	D-9
40HF(R)80 .....	H-2	10ETS16S .....	D-12	120NQ045R .....	G-8	150CMQ035 .....	G-11
6F(R)100 .....	H-1	10RIA10 .....	H-3	121NQ035 .....	G-8	150CMQ040 .....	G-11
6F(R)120 .....	H-1	10RIA10 .....	D-43	121NQ040 .....	G-8	150CMQ045 .....	G-11
6F(R)60 .....	H-1	10RIA100 .....	H-3	121NQ045 .....	G-8	150CNQ045 .....	G-12
6F(R)80 .....	H-1	10RIA100 .....	D-43	121NQ045R .....	G-8	150K100A .....	D-19
70HF(R)10 .....	H-2	10RIA120 .....	H-3	122NQ030 .....	G-8	150K10A .....	D-19
70HF(R)100 .....	H-2	10RIA120 .....	D-43	122NQ030R .....	G-8	150K20A .....	D-19
70HF(R)120 .....	H-2	10RIA20 .....	H-3	123NQ080 .....	G-8	150K30A .....	D-19
70HF(R)140 .....	H-2	10RIA20 .....	D-43	123NQ100 .....	G-8	150K40A .....	D-19
70HF(R)160 .....	H-2	10RIA40 .....	H-3	123NQ100R .....	G-8	150K5A .....	D-19
70HF(R)20 .....	H-2	10RIA40 .....	D-43	125NQ015 .....	G-8	150K60A .....	D-19
70HF(R)40 .....	H-2	10RIA60 .....	H-3	125NQ015R .....	G-8	150K80A .....	D-19
70HF(R)60 .....	H-2	10RIA60 .....	D-43	128NQ060 .....	G-8	150KS10 .....	D-19
70HF(R)80 .....	H-2	10RIA80 .....	H-3	128NQ060R .....	G-8	150KS100 .....	D-20
85HF(R)10 .....	H-2	10RIA80 .....	D-43	129NQ150 .....	G-8	150KS20 .....	D-19
85HF(R)100 .....	H-2	10TQ035 .....	G-3	129NQ150R .....	G-8	150KS40 .....	D-19
85HF(R)120 .....	H-2	10TQ035S .....	G-1	12CGQ150 .....	H-21	150KS5 .....	D-19
85HF(R)20 .....	H-2	10TQ040 .....	G-3	12CTQ035 .....	G-6	150KS60 .....	D-19
85HF(R)40 .....	H-2	10TQ045 .....	G-3	12CTQ035S .....	G-5	150KS80 .....	D-20
85HF(R)60 .....	H-2	10TQ045S .....	G-1	12CTQ040 .....	G-6	150L100A .....	D-20
85HF(R)80 .....	H-2	110MT100K .....	D-9	12CTQ045 .....	G-6	150L10A .....	D-20
100JB05L .....	D-7	110MT120K .....	D-9	12CTQ045S .....	G-5	150L20A .....	D-20
100JB10L .....	D-7	110MT140K .....	D-9	12F10 .....	D-15	150L40A .....	D-20
100JB12L .....	D-7	110MT160K .....	D-9	12F100 .....	D-15	150L5A .....	D-20
100JB14L .....	D-7	110MT80K .....	D-9	12F120 .....	D-15	150L60A .....	D-20
100JB16L .....	D-7	110RKI120 .....	D-45	12F20 .....	D-15	150L80A .....	D-20
100JB1L .....	D-7	110RKI140 .....	D-45	12F40 .....	D-15	151CMQ035 .....	G-11
100JB2L .....	D-7	110RKI80 .....	D-45	12F60 .....	D-15	151CMQ040 .....	G-11
100JB4L .....	D-7	111MT100K .....	D-63	12F80 .....	D-15	151CMQ045 .....	G-11

## Index

151CNQ045	G-12	16RIA40	D-43	1N1183	D-16	1N3294A	D-19
152CMQ030	G-11	16RIA60	H-3	1N1183A	D-16	1N3295A	D-19
153CMQ080	G-11	16RIA60	D-43	1N1184	D-16	1N3670A	D-15
153CMQ100	G-11	16RIA80	H-3	1N1184A	D-17	1N3671A	D-15
153CNQ100	G-12	16RIA80	D-43	1N1185	D-16	1N3672A	D-15
15CGQ100	H-21	16TTS08	D-42	1N1185A	D-17	1N3673A	D-15
15CLQ100	H-21	16TTS08S	D-42	1N1186	D-16	1N3735	D-23
15CTQ035	G-6	16TTS12	D-42	1N1186A	D-17	1N3736	D-23
15CTQ035S	G-5	16TTS12S	D-42	1N1187	D-16	1N3737	D-23
15CTQ040	G-6	16TTS16	D-42	1N1187A	D-17	1N3738	D-23
15CTQ045	G-6	16TTS16S	D-42	1N1188	D-16	1N3739	D-23
15CTQ045S	G-5	180NQ035	G-8	1N1188A	D-17	1N3740	D-23
160CMQ035	G-12	180NQ040	G-8	1N1189	D-16	1N3741	D-23
160CMQ040	G-12	180NQ045	G-8	1N1189A	D-17	1N3742	D-23
160CMQ045	G-12	180NQ045R	G-8	1N1190	D-16	1N3743	D-23
160CNQ045	G-12	180RK1100	D-46	1N1190A	D-17	1N3765	D-16
160MT100K	D-10	180RK140	D-46	1N1199A	D-15	1N3766	D-16
160MT120K	D-10	180RK180	D-46	1N1200A	D-15	1N3767	D-16
160MT140K	D-10	181NQ035	G-8	1N1201A	D-15	1N3768	D-16
160MT160K	D-10	181NQ040	G-8	1N1202A	D-15	1N3879	G-28
160MT80K	D-10	181NQ045	G-8	1N1203A	D-15	1N3880	G-28
161CMQ035	G-12	181NQ045R	G-8	1N1204A	D-15	1N3881	G-28
161CMQ040	G-12	182NQ030	G-8	1N1205A	D-15	1N3882	G-28
161CMQ045	G-12	182NQ030R	G-8	1N1206A	D-15	1N3883	G-28
161CNQ045	G-12	183NQ080	G-8	1N2054	D-22	1N3889	G-28
162CMQ030	G-12	183NQ100	G-8	1N2055	D-22	1N3890	G-28
162CNQ030	G-12	183NQ100R	G-8	1N2057	D-22	1N3891	G-28
163CMQ080	G-12	185NQ015	G-9	1N2059	D-22	1N3892	G-28
163CMQ100	G-12	185NQ015R	G-9	1N2061	D-22	1N3893	G-28
163CNQ100	G-12	188NQ060	G-9	1N2064	D-22	1N4044	D-23
168CMQ060	G-12	188NQ060R	G-9	1N2066	D-22	1N4045	D-23
16CTQ080	G-6	189NQ150	G-9	1N2067	D-23	1N4046	D-23
16CTQ080S	G-5	189NQ150R	G-9	1N2068	D-23	1N4047	D-23
16CTQ100	G-6	18TQ035	G-3	1N2128A	D-17	1N4048	D-23
16CTQ100S	G-5	18TQ035S	G-1	1N2129A	D-17	1N4049	D-23
16F10	D-15	18TQ040	G-3	1N2130A	D-17	1N4050	D-23
16F100	D-15	18TQ045	G-3	1N2131A	D-17	1N4051	D-23
16F120	D-15	18TQ045S	G-1	1N2133A	D-17	1N4052	D-24
16F20	D-15	19TQ015	G-3	1N2135A	D-17	1N4053	D-24
16F40	D-15	19TQ015S	G-1	1N2137A	D-17	1N4054	D-24
16F60	D-15	1B005	D-3	1N2138A	D-17	1N4055	D-24
16F80	D-15	1B005S	D-3	1N3085	D-20	1N4056	D-24
16FL100S05	G-29	1B01	D-3	1N3086	D-20	1N6097	G-4
16FL10S02	G-28	1B01S	D-3	1N3087	D-20	1N6098	G-4
16FL10S05	G-28	1B02	D-3	1N3088	D-20	1N6392	G-4
16FL20S02	G-28	1B02S	D-3	1N3089	D-20	200CNQ035	G-13
16FL20S05	G-28	1B04	D-3	1N3090	D-20	200CNQ040	G-13
16FL40S02	G-28	1B04S	D-3	1N3091	D-20	200CNQ045	G-13
16FL40S05	G-29	1B06	D-3	1N3092	D-20	200HF120PV	D-21
16FL60S02	G-28	1B06S	D-3	1N3111	D-20	200HF40PV	D-21
16FL60S05	G-29	1B08	D-3	1N3208	D-16	200HF80PV	D-21
16FL80S05	G-29	1B08S	D-3	1N3209	D-16	201CMQ045	G-14
16RIA10	H-3	1B10	D-3	1N3210	D-16	201CNQ035	G-13
16RIA10	D-43	1B10S	D-3	1N3211	D-16	201CNQ040	G-13
16RIA100	H-3	1BQ20	D-2	1N3212	D-16	201CNQ045	G-13
16RIA100	D-43	1BQ40	D-2	1N3213	D-16	201CNQ050	G-13
16RIA120	H-3	1KAB05E	D-3	1N3214	D-16	203CMQ100	G-14
16RIA120	D-43	1KAB100E	D-4	1N3288A	D-19	203CNQ080	G-13
16RIA140	D-43	1KAB10E	D-3	1N3289A	D-19	203CNQ100	G-13
16RIA160	D-43	1KAB20E	D-4	1N3290A	D-19	203DMQ100	G-10
16RIA20	H-3	1KAB40E	D-4	1N3291A	D-19	203DNQ100	G-10
16RIA20	D-43	1KAB60E	D-4	1N3292B	D-19	208CMQ060	G-14
16RIA40	H-3	1KAB80E	D-4	1N3293A	D-19	208CNQ060	G-13



## Index

209CMQ150	G-14	242NQ030R	G-9	26MB05A	D-7	300CNQ040	G-13
209CNQ150	G-13	243NQ080	G-9	26MB100A	D-7	300CNQ045	G-13
209DMQ150	G-10	243NQ100	G-9	26MB10A	D-7	300HF120P	D-24
209DNQ150	G-10	243NQ100R	G-9	26MB120A	D-7	300HF40P	D-24
20CJQ030	G-5	245NQ015	G-9	26MB140A	D-7	300HF80P	D-24
20CJQ045	G-5	245NQ015R	G-9	26MB160A	D-7	300U100A	D-24
20CJQ060	G-5	248NQ060	G-9	26MB20A	D-7	300U10A	D-24
20CJQ100	G-5	248NQ060R	G-9	26MB40A	D-7	300U120AD	D-24
20CLQ045	H-21	249NQ150	G-9	26MB60A	D-7	300U160AD	D-24
20CTQ035	G-6	249NQ150R	G-9	26MB80A	D-7	300U20A	D-24
20CTQ035S	G-5	250JB05L	D-7	26MT10	D-8	300U40A	D-24
20CTQ040	G-6	250JB10L	D-7	26MT100	D-8	300U60A	D-24
20CTQ045	G-6	250JB12L	D-7	26MT120	D-8	300U80A	D-24
20CTQ045S	G-5	250JB14L	D-7	26MT140	D-8	301CNQ035	G-13
20ETF02	G-27	250JB16L	D-7	26MT160	D-8	301CNQ040	G-13
20ETF02S	G-27	250JB1L	D-7	26MT20	D-8	301CNQ045	G-13
20ETF04	G-27	250JB2L	D-7	26MT40	D-8	301CNQ050	G-13
20ETF04S	G-27	250JB4L	D-7	26MT5	D-8	301U120	D-25
20ETF06	G-27	250JB6L	D-7	26MT60	D-8	301U160	D-25
20ETF06S	G-27	250JB8L	D-7	26MT80	D-8	301U200	D-25
20ETS08	D-12	251UL100S10	G-31	2KBB05	D-4	301U250	D-25
20ETS08S	D-12	251UL120S15	G-31	2KBB05R	D-4	301U80	D-25
20ETS12	D-12	251UL140S15	G-31	2KBB10	D-4	303CNQ080	G-13
20ETS12S	D-12	251UL160S15	G-31	2KBB100	D-4	303CNQ100	G-13
20ETS16	D-12	251UL180S20	G-31	2KBB100R	D-4	309CNQ150	G-13
20ETS16S	D-12	251UL200S20	G-31	2KBB10R	D-4	30BF10	G-25
20TQ035	G-3	251UL250S20	G-31	2KBB20	D-4	30BF20	G-25
20TQ035S	G-1	251UL80S10	G-31	2KBB20R	D-4	30BF40	G-25
20TQ040	G-3	25CTQ035	G-6	2KBB40	D-4	30BF60	G-25
20TQ045	G-3	25CTQ035S	G-5	2KBB40R	D-4	30BF80	G-25
20TQ045S	G-1	25CTQ040	G-6	2KBB60	D-4	30BQ015	G-1
220CMQ030	G-14	25CTQ045	G-6	2KBB60R	D-4	30BQ040	G-1
220CNQ025	G-13	25CTQ045S	G-5	2KBB80	D-4	30BQ060	G-1
220CNQ030	G-13	25F10	D-15	2KBB80R	D-4	30BQ100	G-1
225CNQ015	G-13	25F100	D-16	2KBP005	D-4	30CPF02	G-27
22CGQ045	H-21	25F120	D-16	2KBP01	D-4	30CPF04	G-27
22DGQ045	H-22	25F20	D-15	2KBP02	D-5	30CPF06	G-27
22GQ100	H-22	25F40	D-16	2KBP04	D-5	30CPQ035	G-7
22RIA10	H-3	25F60	D-16	2KBP06	D-5	30CPQ040	G-7
22RIA10	D-43	25F80	D-16	2KBP08	D-5	30CPQ045	G-7
22RIA100	H-3	25GQ045	H-22	2KBP10	D-5	30CPQ050	G-7
22RIA100	D-44	25RIA10	H-3	2N1800	D-45	30CPQ060	G-7
22RIA120	H-3	25RIA10	D-44	2N1801	D-45	30CPQ080	G-7
22RIA120	D-44	25RIA100	H-3	2N1802	D-45	30CPQ100	G-7
22RIA140	D-44	25RIA100	D-44	2N1803	D-45	30CPQ150	G-7
22RIA160	D-44	25RIA120	H-3	2N1804	D-45	30CTQ035	G-6
22RIA20	H-3	25RIA120	D-44	2N5204	D-44	30CTQ035S	G-5
22RIA20	D-43	25RIA140	D-44	2N5205	D-44	30CTQ040	G-6
22RIA40	H-3	25RIA160	D-44	2N5206	D-44	30CTQ045	G-6
22RIA40	D-43	25RIA20	H-3	2N5207	D-44	30CTQ045S	G-5
22RIA60	H-3	25RIA20	D-44	2N681	D-43	30CTQ050	G-6
22RIA60	D-44	25RIA40	H-3	2N682	D-43	30CTQ050S	G-5
22RIA80	H-3	25RIA40	D-44	2N683	D-43	30CTQ060	G-6
22RIA80	D-44	25RIA60	H-3	2N684	D-43	30CTQ060S	G-5
240NQ035	G-9	25RIA60	D-44	2N685	D-43	30EPF02	G-27
240NQ040	G-9	25RIA80	H-3	2N686	D-43	30EPF04	G-27
240NQ045	G-9	25RIA80	D-44	2N687	D-43	30EPF06	G-27
240NQ045R	G-9	25TTS012	D-42	2N688	D-43	30HFU-100	G-29
241NQ035	G-9	25TTS08	D-42	2N689	D-43	30HFU-200	G-29
241NQ040	G-9	25TTS08S	D-42	2N690	D-43	30HFU-300	G-29
241NQ045	G-9	25TTS12S	D-42	2N691	D-43	30HFU-400	G-29
241NQ045R	G-9	25TTS16	D-42	2N692	D-43	30HFU-500	G-29
242NQ030	G-9	25TTS16S	D-42	300CNQ035	G-13	30HFU-600	G-29

International  
**IOR** Rectifier

# Index

31DQ03 .....	G-2	40EPS08 .....	D-13	50RIA80 .....	D-44	62CNQ030SM .....	G-15
31DQ04 .....	G-2	40EPS12 .....	D-13	50SQ080 .....	G-2	63CNQ080 .....	G-14
31DQ05 .....	G-2	40EPS16 .....	D-13	50SQ100 .....	G-2	63CNQ100 .....	G-14
31DQ06 .....	G-2	40HA100 .....	D-32	51HQ035 .....	G-4	63CNQ100SL .....	G-10
31DQ09 .....	G-2	40HA120 .....	D-32	51HQ040 .....	G-4	63CNQ100SM .....	G-15
31DQ10 .....	G-2	40HA140 .....	D-32	51HQ045 .....	G-4	6F(R)10 .....	H-1
32CTQ030 .....	G-6	40HA160 .....	D-32	51MT100K .....	D-63	6F(R)20 .....	H-1
32CTQ030S .....	G-5	40HA40 .....	D-31	51MT120K .....	D-63	6F(R)40 .....	H-1
35CLQ045 .....	H-21	40HA60 .....	D-32	51MT140K .....	D-63	6F10 .....	D-14
35MB05A .....	D-7	40HA80 .....	D-32	51MT160K .....	D-63	6F100 .....	D-15
35MB100A .....	D-8	40HF10 .....	D-17	51MT80K .....	D-63	6F120 .....	D-15
35MB10A .....	D-7	40HF100 .....	D-17	52MT100K .....	D-63	6F20 .....	D-14
35MB120A .....	D-8	40HF120 .....	D-17	52MT120K .....	D-63	6F40 .....	D-14
35MB140A .....	D-8	40HF140 .....	D-17	52MT140K .....	D-63	6F60 .....	D-14
35MB160A .....	D-8	40HF160 .....	D-17	52MT160K .....	D-63	6F80 .....	D-14
35MB20A .....	D-7	40HF20 .....	D-17	52MT80K .....	D-63	6FL100S05 .....	G-28
35MB40A .....	D-7	40HF40 .....	D-17	53MT100K .....	D-63	6FL10S02 .....	G-28
35MB60A .....	D-7	40HF60 .....	D-17	53MT120K .....	D-63	6FL10S05 .....	G-28
35MB80A .....	D-8	40HF80 .....	D-17	53MT140K .....	D-63	6FL20S02 .....	G-28
36MB05A .....	D-7	40HFL100S05 .....	G-29	53MT160K .....	D-63	6FL20S05 .....	G-28
36MB100A .....	D-8	40HFL10S02 .....	G-29	53MT80K .....	D-63	6FL40S02 .....	G-28
36MB10A .....	D-7	40HFL10S05 .....	G-29	54MT100K .....	D-62	6FL40S05 .....	G-28
36MB120A .....	D-8	40HFL20S02 .....	G-29	54MT120K .....	D-62	6FL60S02 .....	G-28
36MB140A .....	D-8	40HFL20S05 .....	G-29	54MT140K .....	D-62	6FL60S05 .....	G-28
36MB160A .....	D-8	40HFL40S02 .....	G-29	54MT160K .....	D-62	6FL80S05 .....	G-28
36MB20A .....	D-7	40HFL40S05 .....	G-29	54MT80K .....	D-62	6TQ035 .....	G-3
36MB40A .....	D-7	40HFL60S02 .....	G-29	55HQ030 .....	G-4	6TQ035S .....	G-1
36MB60A .....	D-7	40HFL60S05 .....	G-29	5EQ100 .....	H-21	6TQ040 .....	G-3
36MB80A .....	D-8	40HFL80S05 .....	G-29	60CIQ045 .....	H-21	6TQ045 .....	G-3
36MT10 .....	D-8	40TPS08 .....	D-42	60CKQ045 .....	H-21	6TQ045S .....	G-1
36MT100 .....	D-8	40TPS12 .....	D-42	60CNQ035 .....	G-14	70HA100 .....	D-32
36MT120 .....	D-8	40TPS16 .....	D-42	60CNQ040 .....	G-14	70HA120 .....	D-32
36MT140 .....	D-8	440CMQ030 .....	G-14	60CNQ045 .....	G-14	70HA140 .....	D-32
36MT160 .....	D-8	440CNQ030 .....	G-14	60CNQ045SSL .....	G-10	70HA160 .....	D-32
36MT20 .....	D-8	445CNQ015 .....	G-14	60CNQ045SM .....	G-15	70HA40 .....	D-32
36MT40 .....	D-8	45CIQ100 .....	H-21	60EPF02 .....	G-27	70HA60 .....	D-32
36MT5 .....	D-8	45CKQ100 .....	H-21	60EPF04 .....	G-27	70HA80 .....	D-32
36MT60 .....	D-8	45L10 .....	D-21	60EPF06 .....	G-27	70HF10 .....	D-17
36MT80 .....	D-8	45L100 .....	D-21	60EPS08 .....	D-13	70HF100 .....	D-17
400CNQ035 .....	G-13	45L120D .....	D-21	60EPS12 .....	D-13	70HF120 .....	D-18
400CNQ040 .....	G-13	45L160D .....	D-21	60EPS16 .....	D-13	70HF140 .....	D-18
400CNQ045 .....	G-13	45L20 .....	D-21	60HFU-100 .....	G-29	70HF160 .....	D-18
400DMQ045 .....	G-10	45L40 .....	D-21	60HFU-200 .....	G-30	70HF20 .....	D-17
401CMQ045 .....	G-14	45L60 .....	D-21	60HFU-300 .....	G-30	70HF40 .....	D-17
401CNQ035 .....	G-13	45L80 .....	D-21	60HFU-400 .....	G-30	70HF60 .....	D-17
401CNQ040 .....	G-13	50HQ035 .....	G-4	60HFU-500 .....	G-30	70HF80 .....	D-17
401CNQ045 .....	G-13	50HQ040 .....	G-4	60HFU-600 .....	G-30	70HFL100S05 .....	G-30
403CMQ100 .....	G-14	50HQ080 .....	G-4	60HQ080 .....	G-4	70HFL10S02 .....	G-30
403CNQ080 .....	G-13	50HQ100 .....	G-4	60HQ100 .....	G-4	70HFL10S05 .....	G-30
403CNQ100 .....	G-13	50RIA10 .....	D-44	60LQ045 .....	H-22	70HFL20S02 .....	G-30
408CMQ060 .....	G-14	50RIA100 .....	D-44	60LQ100 .....	H-22	70HFL20S05 .....	G-30
408CNQ060 .....	G-14	50RIA100 .....	D-44	60MT100K .....	D-9	70HFL40S02 .....	G-30
409CNQ150 .....	G-14	50RIA120 .....	H-4	60MT120K .....	D-9	70HFL40S05 .....	G-30
40CPQ035 .....	G-7	50RIA120 .....	D-44	60MT140K .....	D-9	70HFL60S02 .....	G-30
40CPQ040 .....	G-7	50RIA140 .....	D-44	60MT160K .....	D-9	70HFL60S05 .....	G-30
40CPQ045 .....	G-7	50RIA160 .....	D-44	60MT80K .....	D-9	70HFL80S05 .....	G-30
40CPQ050 .....	G-7	50RIA20 .....	H-4	61CNQ035 .....	G-14	70MT100K .....	D-9
40CPQ060 .....	G-7	50RIA20 .....	D-44	61CNQ040 .....	G-14	70MT120K .....	D-9
40CPQ080 .....	G-7	50RIA40 .....	H-4	61CNQ045 .....	G-14	70MT140K .....	D-9
40CPQ100 .....	G-7	50RIA40 .....	D-44	61CNQ045SSL .....	G-10	70MT160K .....	D-9
40EPF02 .....	G-27	50RIA60 .....	H-4	61CNQ045SM .....	G-15	70MT80K .....	D-9
40EPF04 .....	G-27	50RIA60 .....	D-44	62CNQ030 .....	G-14	70U10 .....	D-24
40EPF06 .....	G-27	50RIA80 .....	H-4	62CNQ030SL .....	G-10	70U100 .....	D-25

# Index

70U120D .....	D-23	88CNQ060 .....	G-10	A25F40 .....	D-31	HFA08PB120 .....	G-19
70U160D .....	D-23	88HF10 .....	D-18	A25F60 .....	D-31	HFA08PB60 .....	G-19
70U20 .....	D-24	88HF100 .....	D-18	A25F80 .....	D-31	HFA08TA60C .....	G-18
70U40 .....	D-24	88HF120 .....	D-18	A6F100 .....	D-31	HFA08TA60CS .....	G-18
70U60 .....	D-24	88HF20 .....	D-18	A6F120 .....	D-31	HFA08TB120 .....	G-19
70U80 .....	D-24	88HF40 .....	D-18	A6F40 .....	D-31	HFA08TB120S .....	G-18
75HQ035 .....	G-4	88HF60 .....	D-18	A6F60 .....	D-31	HFA08TB60 .....	G-18
75HQ040 .....	G-4	88HF80 .....	D-18	A6F80 .....	D-31	HFA08TB60S .....	G-18
75HQ045 .....	G-4	89CNQ150 .....	G-10	CPV362M4U .....	F-42	HFA100MD60C .....	G-21
80CNQ035 .....	G-10	8AF05NPP .....	D-14	CPV362MF .....	F-37	HFA100MD60D .....	G-22
80CNQ040 .....	G-10	8AF1NPP .....	D-14	CPV362MK .....	F-42	HFA105NH60 .....	G-20
80CNQ045 .....	G-10	8AF2NPP .....	D-14	CPV362MM .....	F-37	HFA105NH60R .....	G-20
80CNQ045SL .....	G-11	8AF4NPP .....	D-14	CPV363M4U .....	F-42	HFA120MD40C .....	G-21
80CNQ045SM .....	G-11	8EQ045 .....	H-21	CPV363MK .....	F-42	HFA120MD40D .....	G-22
80EPF02 .....	G-27	8EWS08S .....	D-12	CPV363MM .....	F-37	HFA135NH40 .....	G-20
80EPF04 .....	G-27	8EWS12S .....	D-12	CPV364MF .....	F-37	HFA135NH40R .....	G-20
80EPF06 .....	G-27	8EWS16S .....	D-12	CPV364MK .....	F-42	HFA140MD60C .....	G-21
80RIA120 .....	D-45	8TQ080 .....	G-3	CPV364MM .....	F-37	HFA140MD60D .....	G-22
80RIA40 .....	D-45	8TQ080S .....	G-1	CPV364MU .....	F-42	HFA140NH60 .....	G-20
80RIA80 .....	D-45	8TQ100 .....	G-3	CS5005 .....	E-11	HFA140NH60R .....	G-20
80SQ035 .....	G-2	8TQ100S .....	G-3	CS5010 .....	E-11	HFA140NJ60C .....	G-21
80SQ040 .....	G-2	90MT100K .....	D-9	CS6005 .....	E-11	HFA140NJ60D .....	G-23
80SQ045 .....	G-2	90MT120K .....	D-9	CS6010 .....	E-11	HFA15PB60 .....	G-19
81CNQ035 .....	G-10	90MT140K .....	D-9	DF005M .....	D-2	HFA15TB60 .....	G-18
81CNQ040 .....	G-10	90MT160K .....	D-9	DF005S .....	D-2	HFA15TB60S .....	G-18
81CNQ045 .....	G-10	90MT80K .....	D-9	DF01M .....	D-2	HFA160MD40C .....	G-21
81CNQ045SL .....	G-11	90SQ035 .....	G-2	DF01S .....	D-2	HFA160MD40D .....	G-22
81CNQ045SM .....	G-11	90SQ040 .....	G-2	DF02M .....	D-2	HFA160NJ40C .....	G-21
81CNQ050 .....	G-10	90SQ045 .....	G-2	DF02S .....	D-2	HFA160NJ40D .....	G-23
81CNQ050SL .....	G-11	91MT100K .....	D-63	DF04M .....	D-2	HFA16PA60C .....	G-19
81CNQ050SM .....	G-11	91MT120K .....	D-63	DF04S .....	D-2	HFA16PB120 .....	G-19
82CNQ030 .....	G-10	91MT140K .....	D-63	DF06M .....	D-2	HFA16TA60C .....	G-18
82CNQ030SL .....	G-11	91MT160K .....	D-63	DF06S .....	D-2	HFA16TA60CS .....	G-18
82CNQ030SM .....	G-11	91MT80K .....	D-63	DF08M .....	D-2	HFA16TB120 .....	G-19
83CNQ080 .....	G-10	92MT100K .....	D-63	DF08S .....	D-2	HFA16TB120S .....	G-18
83CNQ100 .....	G-10	92MT120K .....	D-63	DF10M .....	D-2	HFA180MD60C .....	G-21
83CNQ100SL .....	G-11	92MT140K .....	D-63	DF10S .....	D-2	HFA180MD60D .....	G-22
83CNQ100SM .....	G-11	92MT160K .....	D-63	DPA4111 .....	E-11	HFA180NH40 .....	G-20
85CNQ015 .....	G-10	92MT80K .....	D-63	DPA4119 .....	E-11	HFA180NH40R .....	G-20
85CNQ015SL .....	G-11	93MT100K .....	D-63	DPA6111 .....	E-11	HFA200MD40C .....	G-21
85CNQ015SM .....	G-11	93MT110K .....	D-63	DPA6119 .....	E-11	HFA200MD40D .....	G-22
85HF10 .....	D-18	93MT140K .....	D-63	HF06A060ACB .....	G-24	HFA210NJ60C .....	G-21
85HF100 .....	D-18	93MT160K .....	D-63	HF10A060ACB .....	G-24	HFA210NJ60D .....	G-23
85HF120 .....	D-18	93MT80K .....	D-63	HF10A060ACD .....	G-24	HFA240NJ40C .....	G-21
85HF140 .....	D-18	94MT100K .....	D-62	HF20A060ACB .....	G-24	HFA240NJ40D .....	G-23
85HF160 .....	D-18	94MT120K .....	D-62	HF20A060ACD .....	G-24	HFA25PB60 .....	G-19
85HF20 .....	D-18	94MT140K .....	D-62	HF20C120ACB .....	G-24	HFA25TB60 .....	G-18
85HF40 .....	D-18	94MT160K .....	D-62	HF20C120ACD .....	G-24	HFA25TB60S .....	G-18
85HFL .....	D-18	94MT80K .....	D-62	HF30A060ACB .....	G-24	HFA280NJ60D .....	G-23
85HFL100S05 .....	G-30	95HQ015 .....	G-4	HF30A060ACD .....	G-24	HFA280NJ6C .....	G-21
85HFL10S02 .....	G-30	A12F100 .....	D-31	HF30C120ACB .....	G-24	HFA30PA60C .....	G-19
85HFL10S05 .....	G-30	A12F120 .....	D-31	HF30C120ACD .....	G-24	HFA30PB120 .....	G-19
85HFL20S02 .....	G-30	A12F40 .....	D-31	HF40A060ACB .....	G-24	HFA30TA60C .....	G-18
85HFL20S05 .....	G-30	A12F60 .....	D-31	HF40A060ACD .....	G-24	HFA30TA60CS .....	G-18
85HFL40S02 .....	G-30	A12F80 .....	D-31	HF40C120ACB .....	G-24	HFA320NJ40C .....	G-21
85HFL40S05 .....	G-30	A16F100 .....	D-31	HF40C120ACD .....	G-24	HFA320NJ40D .....	G-23
85HFL60S02 .....	G-30	A16F120 .....	D-31	HF50C120ACB .....	G-24	HFA32PA120C .....	G-19
85HFL60S05 .....	G-30	A16F40 .....	D-31	HF50C120ACD .....	G-24	HFA35HB120 .....	H-23
85HFL80S05 .....	G-30	A16F60 .....	D-31	HFA04TB60 .....	G-18	HFA35HB120C .....	H-23
85HQ035 .....	G-4	A16F80 .....	D-31	HFA04TB60S .....	G-18	HFA35HB60 .....	H-23
85HQ040 .....	G-4	A25F100 .....	D-31	HFA06PB120 .....	G-19	HFA35HB60C .....	H-23
85HQ045 .....	G-4	A25F120 .....	D-31	HFA06TB120 .....	G-19	HFA40HF120 .....	H-23
				HFA06TB120S .....	G-18	HFA40HF60 .....	H-23

International  
**IGR** Rectifier



# Index

HFA45HC120C	H-23	IR480DM12C	D-40	IRF530NS	F-10	IRF7603	F-3
HFA45HC60C	H-23	IR51H214	E-6	IRF540N	F-13	IRF7604	F-3
HFA45HI120C	H-23	IR51H224	E-6	IRF540NS	F-10	IRF7606	F-3
HFA45HI60C	H-23	IR51H310	E-6	IRF610	F-13	IRF820	F-13
HFA50PA60C	G-19	IR51H320	E-6	IRF610S	F-10	IRF820S	F-10
HFA60MB60C	G-20	IR51H420	E-6	IRF614	F-13	IRF830	F-13
HFA60MC60C	G-22	IR51H737	E-6	IRF614S	F-10	IRF830S	F-10
HFA70NC60C	G-20	IR51HD214	E-6	IRF620	F-13	IRF840	F-13
HFA70NC60CSL	G-20	IRC530	F-18	IRF620S	F-10	IRF840LC	F-12
HFA70NC60CSM	G-21	IRC540	F-18	IRF624	F-13	IRF840S	F-10
HFA70NH60	G-20	IRC630	F-18	IRF624S	F-10	IRF9510	F-14
HFA70NH60R	G-20	IRC634	F-18	IRF630	F-13	IRF9510S	F-11
HFA70NK60C	G-22	IRC640	F-18	IRF630S	F-10	IRF9520	F-14
HFA75MB40C	G-20	IRC644	F-18	IRF634	F-13	IRF9520S	F-11
HFA75MC40C	G-22	IRC730	F-18	IRF634S	F-10	IRF9530N	F-14
HFA80NC40C	G-20	IRC740	F-18	IRF640	F-13	IRF9530S	F-11
HFA80NC40CSL	G-20	IRC830	F-18	IRF640S	F-10	IRF9540N	F-14
HFA80NC40CSM	G-21	IRC840	F-18	IRF644	F-13	IRF9540S	F-11
HFA80NK40C	G-22	IRCC024	F-26	IRF644S	F-10	IRF9610	F-14
HFA90NH40	G-20	IRCC034	F-26	IRF710	F-13	IRF9610S	F-11
HFA90NH40R	G-20	IRCC044	F-26	IRF7101	F-4	IRF9620	F-14
IR135DM08C	D-40	IRCC054	F-26	IRF7103	F-4	IRF9620S	F-11
IR135DM12C	D-40	IRCC130	F-26	IRF7104	F-4	IRF9630	F-14
IR180DM08C	D-40	IRCC140	F-26	IRF7105	F-4	IRF9630S	F-11
IR180DM12C	D-40	IRCC230	F-26	IRF710S	F-10	IRF9640	F-14
IR2101	E-4	IRCC234	F-26	IRF720	F-13	IRF9640S	F-11
IR2102	E-4	IRCC240	F-26	IRF7201	F-4	IRF9952	F-4
IR2103	E-4	IRCC244	F-26	IRF7204	F-4	IRF9953	F-4
IR2104	E-4	IRCC330	F-26	IRF7205	F-4	IRF9956	F-4
IR2110	E-1	IRCC340	F-26	IRF720S	F-10	IRF9Z14	F-14
IR2110E	H-5	IRCC430	F-26	IRF730	F-13	IRF9Z14S	F-11
IR2110E4	H-5	IRCC440	F-26	IRF7301	F-4	IRF9Z24N	F-14
IR2110E6	H-5	IRCZ24	F-18	IRF7303	F-4	IRF9Z34N	F-14
IR2110L	H-5	IRCZ34	F-18	IRF7304	F-4	IRFBC20	F-13
IR2110L4	H-5	IRCZ44	F-18	IRF7306	F-4	IRFBC30	F-13
IR2110L6	H-5	IRD3899	G-29	IRF7307	F-4	IRFBC40	F-13
IR2111	E-3	IRD3900	G-29	IRF7309	F-4	IRFBC40LC	F-12
IR2112	E-1	IRD3901	G-29	IRF730S	F-10	IRFBE20	F-13
IR2113	E-1	IRD3902	G-29	IRF7311	F-4	IRFBE30	F-13
IR2117	E-5	IRD3903	G-29	IRF7313	F-4	IRFBF20	F-13
IR2118	E-5	IRD3909	G-29	IRF7314	F-4	IRFBF30	F-13
IR2121	E-3	IRD3910	G-29	IRF7316	F-4	IRFBG20	F-13
IR2125	E-3	IRD3911	G-29	IRF734	F-13	IRFBG30	F-13
IR2125Z	H-5	IRD3912	G-29	IRF737LC	F-12	IRFC014	F-24
IR2127	E-3	IRD3913	G-29	IRF740	F-13	IRFC024	F-24
IR2128	E-3	IRF1010N	F-13	IRF7401	F-4	IRFC034	F-24
IR2130	E-2	IRF1010NS	F-10	IRF7403	F-4	IRFC044	F-24
IR2130D	H-5	IRF1310N	F-13	IRF7404	F-4	IRFC048	F-24
IR2131	E-2	IRF1310NS	F-10	IRF7406	F-4	IRFC054	F-25
IR2132	E-2	IRF3205	F-13	IRF740LC	F-12	IRFC064	F-24
IR2151	E-4	IRF3205S	F-10	IRF740S	F-10	IRFC110	F-24
IR2152	E-4	IRF3415	F-13	IRF7413	F-4	IRFC120	F-24
IR2153	E-4	IRF3415S	F-10	IRF7416	F-4	IRFC130	F-24
IR2155	E-4	IRF3710	F-13	IRF7421D1	F-5	IRFC140	F-24
IR230DM08C	D-40	IRF3710S	F-10	IRF7422D2	F-5	IRFC150	F-25
IR230DM12C	D-40	IRF4905	F-14	IRF744	F-13	IRFC210	F-24
IR340DM08C	D-40	IRF4905S	F-11	IRF7501	F-3	IRFC214	F-24
IR340DM12C	D-40	IRF510	F-13	IRF7503	F-3	IRFC220	F-24
IR350DM08C	D-40	IRF510S	F-10	IRF7504	F-3	IRFC224	F-24
IR350DM12C	D-40	IRF520N	F-13	IRF7506	F-3	IRFC230	F-24
IR390DM08C	D-40	IRF520NS	F-10	IRF7507	F-3	IRFC234	F-24
IR390DM12C	D-40	IRF5210S	F-10	IRF7509	F-3	IRFC240	F-24
IR480DM08C	D-40	IRF530N	F-13	IRF7601	F-3	IRFC244	F-24

International  
 Rectifier

# Index

IRFC250	F-25	IRFE110	H-13	IRFIBC40G	F-16	IRFL110	F-6
IRFC254	F-25	IRFE120	H-13	IRFIBC40GLC	F-15	IRFL210	F-6
IRFC260	F-25	IRFE130	H-13	IRFIBE20G	F-16	IRFL214	F-6
IRFC264	F-24	IRFE210	H-13	IRFIBE30G	F-16	IRFL4105	F-6
IRFC310	F-24	IRFE220	H-13	IRFIBF20G	F-16	IRFL4310	F-6
IRFC320	F-24	IRFE230	H-13	IRFIBF30G	F-16	IRFL9014	F-6
IRFC330	F-24	IRFE310	H-13	IRFIZ14G	F-16	IRFL9110	F-6
IRFC340	F-24	IRFE320	H-13	IRFIZ24N	F-16	IRFM044	H-18
IRFC350	F-25	IRFE330	H-13	IRFIZ34N	F-16	IRFM054	H-18
IRFC360	F-24	IRFE420	H-13	IRFIZ44N	F-16	IRFM064	H-18
IRFC420	F-24	IRFE430	H-13	IRFIZ46N	F-16	IRFM140	H-18
IRFC430	F-24	IRFE9024	H-13	IRFIZ48N	F-16	IRFM150	H-18
IRFC440	F-24	IRFE9110	H-13	IRFK2D054	F-23	IRFM240	H-18
IRFC448	F-24	IRFE9120	H-13	IRFK2D150	F-23	IRFM250	H-18
IRFC450	F-25	IRFE9130	H-13	IRFK2D250	F-23	IRFM260	H-18
IRFC460	F-24	IRFE9210	H-13	IRFK2D350	F-23	IRFM340	H-18
IRFC9014	F-25	IRFE9220	H-13	IRFK2D450	F-23	IRFM350	H-18
IRFC9024	F-25	IRFE9230	H-13	IRFK2DC50	F-23	IRFM360	H-18
IRFC9034	F-25	IRFG110	H-14	IRFK2DE50	F-23	IRFM440	H-18
IRFC9110	F-25	IRFG5110	H-14	IRFK2F054	F-23	IRFM450	H-18
IRFC9120	F-25	IRFG6110	H-14	IRFK2F150	F-23	IRFM460	H-18
IRFC9130	F-25	IRFG9110	H-14	IRFK2F250	F-23	IRFM9034	H-18
IRFC9140	F-25	IRFI064	H-19	IRFK2F350	F-23	IRFM9140	H-18
IRFC9210	F-25	IRFI1010N	F-16	IRFK2F450	F-23	IRFM9240	H-18
IRFC9220	F-25	IRFI1310N	F-16	IRFK2FC50	F-23	IRFMG40	H-18
IRFC9230	F-25	IRFI260	H-19	IRFK2FE50	F-23	IRFMG50	H-18
IRFC9240	F-25	IRFI3205	F-16	IRFK3D150	F-23	IRFN044	H-15
IRFCC20	F-24	IRFI360	H-19	IRFK3D250	F-23	IRFN054	H-15
IRFCC30	F-24	IRFI460	H-19	IRFK3D350	F-23	IRFN140	H-15
IRFCC40	F-24	IRFI510G	F-16	IRFK3D450	F-23	IRFN150	H-15
IRFCC50	F-25	IRFI520N	F-16	IRFK3DC50	F-23	IRFN240	H-15
IRFCE20	F-24	IRFI530N	F-16	IRFK3F150	F-23	IRFN250	H-15
IRFCE30	F-24	IRFI540N	F-16	IRFK3F250	F-23	IRFN340	H-15
IRFCE40	F-24	IRFI614G	F-16	IRFK3F350	F-23	IRFN350	H-15
IRFCE50	F-25	IRFI620G	F-16	IRFK3F450	F-23	IRFN440	H-15
IRFCF20	F-24	IRFI624G	F-16	IRFK3FC50	F-23	IRFN450	H-15
IRFCF30	F-24	IRFI630G	F-16	IRFK4H054	F-22	IRFN9034	H-15
IRFCF40	F-24	IRFI634G	F-16	IRFK4H150	F-22	IRFN9140	H-15
IRFCF50	F-25	IRFI640G	F-16	IRFK4H250	F-22	IRFN9240	H-15
IRFCG20	F-24	IRFI644G	F-16	IRFK4H350	F-22	IRFNG40	H-15
IRFCG30	F-24	IRFI720G	F-16	IRFK4H450	F-22	IRFNG50	H-15
IRFCG40	F-25	IRFI730G	F-16	IRFK4HC50	F-22	IRFP044N	F-20
IRFCG50	F-24	IRFI734G	F-16	IRFK4HE50	F-22	IRFP048N	F-20
IRFD014	F-9	IRFI740G	F-16	IRFK4J054	F-22	IRFP054N	F-20
IRFD024	F-9	IRFI740GLC	F-15	IRFK4J150	F-22	IRFP064N	F-20
IRFD110	F-9	IRFI744G	F-16	IRFK4J250	F-22	IRFP140N	F-20
IRFD120	F-9	IRFI820G	F-16	IRFK4J350	F-22	IRFP150N	F-20
IRFD210	F-9	IRFI830G	F-16	IRFK4J450	F-22	IRFP240	F-20
IRFD214	F-9	IRFI840G	F-16	IRFK4JC50	F-22	IRFP244	F-20
IRFD220	F-9	IRFI840GLC	F-15	IRFK4JE50	F-22	IRFP250	F-20
IRFD224	F-9	IRFI9520G	F-17	IRFK6H054	F-22	IRFP254	F-20
IRFD310	F-9	IRFI9530G	F-17	IRFK6H150	F-22	IRFP260	F-20
IRFD320	F-9	IRFI9540G	F-17	IRFK6H250	F-22	IRFP264	F-20
IRFD420	F-9	IRFI9540N	F-17	IRFK6H350	F-22	IRFP340	F-20
IRFD9014	F-9	IRFI9620G	F-17	IRFK6H450	F-22	IRFP344	F-20
IRFD9024	F-9	IRFI9630G	F-17	IRFK6HC50	F-22	IRFP350	F-20
IRFD9110	F-9	IRFI9634G	F-17	IRFK6J054	F-22	IRFP350LC	F-19
IRFD9120	F-9	IRFI9640G	F-17	IRFK6J150	F-22	IRFP354	F-20
IRFD9210	F-9	IRFI9Z14G	F-17	IRFK6J250	F-22	IRFP360	F-20
IRFD9220	F-9	IRFI9Z24G	F-17	IRFK6J350	F-22	IRFP360LC	F-19
IRFDC20	F-9	IRFI9Z34G	F-17	IRFK6J450	F-22	IRFP3710	F-20
IRFE024	H-13	IRFIBC20G	F-16	IRFK6JC50	F-22	IRFP440	F-20
IRFE034	H-13	IRFIBC30G	F-16	IRFL014	F-6	IRFP448	F-20

# Index

International  
**IR** Rectifier

IRFP450 .....	F-20	IRFUC20 .....	F-8	IRGBC20MD2 .....	F-36	IRGPC20MD2 .....	F-36
IRFP450LC .....	F-19	IRFV064 .....	H-19	IRGBC20MD2-S .....	F-35	IRGPC30K .....	F-40
IRFP460 .....	F-20	IRFV260 .....	H-19	IRGBC20S .....	F-33	IRGPC30KD2 .....	F-41
IRFP460LC .....	F-19	IRFV360 .....	H-19	IRGBC30K .....	F-39	IRGPC30M .....	F-35
IRFP9140 .....	F-21	IRFV460 .....	H-19	IRGBC30K-S .....	F-39	IRGPC30MD2 .....	F-36
IRFP9240 .....	F-21	IRFY044CM .....	H-19	IRGBC30KD2 .....	F-41	IRGPC30S .....	F-33
IRFPC30 .....	F-20	IRFY130CM .....	H-19	IRGBC30KD2-S .....	F-40	IRGPC40K .....	F-40
IRFPC40 .....	F-20	IRFY140CM .....	H-19	IRGBC30M .....	F-34	IRGPC40KD2 .....	F-41
IRFPC48 .....	F-20	IRFY240CM .....	H-19	IRGBC30M-S .....	F-34	IRGPC40M .....	F-35
IRFPC50 .....	F-20	IRFY340CM .....	H-19	IRGBC30MD2 .....	F-36	IRGPC40MD2 .....	F-36
IRFPC50LC .....	F-19	IRFY430CM .....	H-19	IRGBC30MD2-S .....	F-35	IRGPC50K .....	F-40
IRFPC60 .....	F-20	IRFY440CM .....	H-19	IRGBC30S .....	F-33	IRGPC50KD2 .....	F-41
IRFPC60LC .....	F-19	IRFY9130CM .....	H-19	IRGBC30UD2 .....	F-41	IRGPC50M .....	F-35
IRFPE30 .....	F-20	IRFY9140CM .....	H-19	IRGBC40K .....	F-39	IRGPC50MD2 .....	F-36
IRFPE40 .....	F-20	IRFY9240CM .....	H-19	IRGBC40K-S .....	F-39	IRGPC50S .....	F-33
IRFPE50 .....	F-20	IRFZ14 .....	F-14	IRGBC40M .....	F-34	IRGPC50UD2 .....	F-41
IRFPF30 .....	F-20	IRFZ14S .....	F-10	IRGBC40M-S .....	F-34	IRGPC60K .....	F-40
IRFPF40 .....	F-20	IRFZ24N .....	F-14	IRGBF20F .....	F-34	IRGPC60M .....	F-35
IRFPF50 .....	F-20	IRFZ24NS .....	F-10	IRGBF30F .....	F-34	IRGPF20F .....	F-35
IRFPG30 .....	F-20	IRFZ34N .....	F-14	IRGDDN300K06 .....	F-37	IRGPF30F .....	F-35
IRFPG40 .....	F-20	IRFZ34S .....	F-10	IRGDDN300M06 .....	F-37	IRGPF40F .....	F-35
IRFPG50 .....	F-20	IRFZ44N .....	F-14	IRGDDN400K06 .....	F-37	IRGPF50F .....	F-35
IRFR014 .....	F-7	IRFZ44NS .....	F-10	IRGDDN400M06 .....	F-37	IRGPH20M .....	F-35
IRFR024N .....	F-7	IRFZ46N .....	F-14	IRGDDN600K06 .....	F-37	IRGPH30MD2 .....	F-36
IRFR110 .....	F-7	IRFZ46NS .....	F-10	IRGDDN600M06 .....	F-37	IRGPH40F .....	F-35
IRFR120S .....	F-7	IRFZ48N .....	F-14	IRGIH50F .....	H-20	IRGPH40FD2 .....	F-36
IRFR120N .....	F-7	IRFZ48NS .....	F-10	IRGKI115U06 .....	F-43	IRGPH40K .....	F-40
IRFR210 .....	F-7	IRG4BC20U .....	F-39	IRGKI140U06 .....	F-43	IRGPH40KD2 .....	F-41
IRFR214 .....	F-7	IRG4BC20UD .....	F-41	IRGKI165F06 .....	F-38	IRGPH40M .....	F-35
IRFR220 .....	F-7	IRG4BC30F .....	F-34	IRGKI200F06 .....	F-38	IRGPH40MD2 .....	F-36
IRFR224 .....	F-7	IRG4BC30FD .....	F-36	IRGKIN050M12 .....	F-38	IRGPH50F .....	F-35
IRFR310 .....	F-7	IRG4BC30U .....	F-39	IRGKIN075M12 .....	F-38	IRGPH50FD2 .....	F-36
IRFR320 .....	F-7	IRG4BC30UD .....	F-41	IRGKIN100K06 .....	F-43	IRGPH50K .....	F-40
IRFR3910 .....	F-7	IRG4BC40F .....	F-34	IRGKIN100M06 .....	F-38	IRGPH50KD2 .....	F-41
IRFR410S .....	F-7	IRG4BC40S .....	F-33	IRGKIN100M12 .....	F-38	IRGPH50M .....	F-35
IRFR420 .....	F-7	IRG4BC40U .....	F-39	IRGKIN150K06 .....	F-43	IRGPH50MD2 .....	F-36
IRFR9014 .....	F-7	IRG4PC20U .....	F-40	IRGKIN150M06 .....	F-38	IRGRDN300K06 .....	F-42
IRFR9024 .....	F-7	IRG4PC30F .....	F-35	IRGMC30F .....	H-20	IRGRDN300M06 .....	F-37
IRFR9110 .....	F-7	IRG4PC30FD .....	F-36	IRGMC30U .....	H-20	IRGRDN400K06 .....	F-42
IRFR9120 .....	F-7	IRG4PC30U .....	F-39	IRGMC40F .....	H-20	IRGRDN400M06 .....	F-37
IRFR9210 .....	F-7	IRG4PC30UD .....	F-41	IRGMC40U .....	H-20	IRGRDN600K06 .....	F-42
IRFR9220 .....	F-7	IRG4PC40F .....	F-35	IRGMC50F .....	H-20	IRGRDN600M06 .....	F-37
IRFRC20 .....	F-7	IRG4PC40FD .....	F-36	IRGMC50U .....	H-20	IRGTDN150K06 .....	F-42
IRFU014 .....	F-8	IRG4PC40S .....	F-33	IRGMIC50U .....	H-20	IRGTDN200K06 .....	F-37
IRFU024N .....	F-8	IRG4PC40U .....	F-40	IRGMVC50U .....	H-20	IRGTDN200M06 .....	F-42
IRFU110 .....	F-8	IRG4PC40UD .....	F-41	IRGNI115U06 .....	F-43	IRGTDN300K06 .....	F-37
IRFU120S .....	F-8	IRG4PC50F .....	F-35	IRGNI140U06 .....	F-43	IRGTDN300M06 .....	F-42
IRFU120N .....	F-8	IRG4PC50FD .....	F-36	IRGNI165F06 .....	F-38	IRGTI115U06 .....	F-43
IRFU210 .....	F-8	IRG4PC50U .....	F-40	IRGNI200F06 .....	F-38	IRGTI140U06 .....	F-43
IRFU214 .....	F-8	IRG4PC50UD .....	F-41	IRGNIN050M12 .....	F-38	IRGTI165F06 .....	F-38
IRFU220 .....	F-8	IRGB420U .....	F-39	IRGNIN075M12 .....	F-38	IRGTI200F06 .....	F-38
IRFU224 .....	F-8	IRGB420UD2 .....	F-41	IRGNIN100K06 .....	F-43	IRGTIN050M12 .....	F-38
IRFU310 .....	F-8	IRGB430U .....	F-39	IRGNIN100M06 .....	F-38	IRGTIN075M12 .....	F-38
IRFU320 .....	F-8	IRGB430UD2 .....	F-41	IRGNIN100M12 .....	F-38	IRGTIN100K06 .....	F-43
IRFU3910 .....	F-8	IRGB440U .....	F-39	IRGNIN150K06 .....	F-43	IRGTIN100M06 .....	F-38
IRFU410S .....	F-8	IRGBC20F .....	F-34	IRGNIN150M06 .....	F-38	IRGTIN100M12 .....	F-38
IRFU420 .....	F-8	IRGBC20FD2 .....	F-36	IRGP430U .....	F-39	IRGTIN150K06 .....	F-43
IRFU9014 .....	F-8	IRGBC20K .....	F-39	IRGP430UD2 .....	F-41	IRGTIN150M06 .....	F-38
IRFU9024 .....	F-8	IRGBC20K-S .....	F-39	IRGP440U .....	F-39	IRGVH50F .....	H-20
IRFU9110 .....	F-8	IRGBC20KD2 .....	F-41	IRGP440UD2 .....	F-41	IRH7054 .....	H-8
IRFU9120 .....	F-8	IRGBC20KD2-S .....	F-40	IRGP450U .....	F-39	IRH7130 .....	H-8
IRFU9210 .....	F-8	IRGBC20M .....	F-34	IRGP450UD2 .....	F-41	IRH7150 .....	H-8
IRFU9220 .....	F-8	IRGBC20M-S .....	F-34	IRGPC20KD2 .....	F-41	IRH7230 .....	H-8



# Index

International  
IOR Rectifier

IRH7250	H-8	IRHM8254	H-10	IRKC236-20	D-38	IRKD236-08	D-37
IRH7254SE	H-12	IRHM8260	H-10	IRKC236-22	D-38	IRKD236-12	D-37
IRH7450	H-8	IRHM8360	H-10	IRKC236-24	D-38	IRKD236-16	D-37
IRH7450SE	H-12	IRHM8450	H-10	IRKC250-04	D-38	IRKD236-20	D-38
IRH7C50SE	H-12	IRHM9064	H-11	IRKC250-08	D-38	IRKD236-22	D-38
IRH8054	H-8	IRHM9130	H-11	IRKC250-12	D-38	IRKD236-24	D-38
IRH8130	H-8	IRHM9150	H-11	IRKC250-16	D-38	IRKD250-04	D-38
IRH8150	H-8	IRHM9160	H-11	IRKC250-20	D-38	IRKD250-08	D-38
IRH8230	H-8	IRHM9230	H-11	IRKC270-04	D-38	IRKD250-12	D-38
IRH8250	H-8	IRHM9250	H-11	IRKC270-08	D-38	IRKD250-16	D-38
IRH8450	H-8	IRHM9260	H-11	IRKC270-12	D-38	IRKD250-20	D-38
IRH9130	H-8	IRHN7054	H-7	IRKC270-16	D-38	IRKD270-04	D-38
IRH9150	H-8	IRHN7130	H-7	IRKC270-20	D-38	IRKD270-08	D-38
IRH9230	H-8	IRHN7150	H-7	IRKC270-24	D-38	IRKD270-12	D-38
IRH9250	H-8	IRHN7230	H-7	IRKC270-30	D-38	IRKD270-16	D-38
IRHE7110	H-6	IRHN7250	H-7	IRKC320-04	D-38	IRKD270-20	D-38
IRHE7130	H-6	IRHN7254SE	H-12	IRKC320-08	D-38	IRKD270-24	D-38
IRHE7230	H-6	IRHN7450	H-7	IRKC320-12	D-38	IRKD270-30	D-38
IRHE8110	H-6	IRHN7450SE	H-12	IRKC320-16	D-38	IRKD320-04	D-38
IRHE8130	H-6	IRHN7C50SE	H-12	IRKC320-20	D-38	IRKD320-08	D-38
IRHE8230	H-6	IRHN8054	H-7	IRKC56/04	D-36	IRKD320-12	D-38
IRHE9130	H-6	IRHN8130	H-7	IRKC56/06	D-36	IRKD320-16	D-38
IRHE9230	H-6	IRHN8150	H-7	IRKC56/08	D-36	IRKD320-20	D-38
IRHF7110	H-9	IRHN8230	H-7	IRKC56/10	D-36	IRKD56/04	D-36
IRHF7130	H-9	IRHN8250	H-7	IRKC56/12	D-36	IRKD56/06	D-36
IRHF7210	H-9	IRHN8450	H-7	IRKC56/14	D-36	IRKD56/08	D-36
IRHF7230	H-9	IRHN9130	H-7	IRKC56/16	D-36	IRKD56/10	D-36
IRHF7234	H-9	IRHN9150	H-7	IRKC71/04	D-36	IRKD56/12	D-36
IRHF8110	H-9	IRHN9230	H-7	IRKC71/06	D-36	IRKD56/14	D-36
IRHF8130	H-9	IRHN9250	H-7	IRKC71/08	D-36	IRKD56/16	D-36
IRHF8210	H-9	IRHNA7064	H-8	IRKC71/10	D-37	IRKD600-08	D-38
IRHF8230	H-9	IRHNA7160	H-8	IRKC71/12	D-37	IRKD600-12	D-38
IRHF8234	H-9	IRHNA7260	H-8	IRKC71/14	D-37	IRKD600-16	D-39
IRHF9130	H-9	IRHNA7264SE	H-12	IRKC71/16	D-37	IRKD600-20	D-39
IRHF9230	H-9	IRHNA7360SE	H-12	IRKC91/04	D-37	IRKD71/04	D-36
IRHG6110	H-6	IRHNA7460SE	H-12	IRKC91/06	D-37	IRKD71/06	D-36
IRHG7110	H-6	IRHNA8064	H-8	IRKC91/08	D-37	IRKD71/08	D-36
IRHI7360SE	H-12	IRHNA8160	H-8	IRKC91/10	D-37	IRKD71/10	D-37
IRHI7460SE	H-12	IRHNA8260	H-8	IRKC91/12	D-37	IRKD71/12	D-37
IRHM7054	H-10	IRHNA9064	H-8	IRKC91/14	D-37	IRKD71/14	D-37
IRHM7064	H-10	IRHNA9160	H-8	IRKC91/16	D-37	IRKD71/16	D-37
IRHM7130	H-10	IRHNA9260	H-8	IRKCL132-06S10	G-37	IRKD91/04	D-37
IRHM7150	H-10	IRHY7130CM	H-11	IRKCL132-10S10	G-37	IRKD91/06	D-37
IRHM7160	H-10	IRHY7230CM	H-11	IRKCL132-12S20	G-37	IRKD91/08	D-37
IRHM7230	H-10	IRHY8130CM	H-11	IRKCL132-14S20	G-37	IRKD91/10	D-37
IRHM7250	H-10	IRHY8230CM	H-11	IRKCL240-06S10	G-37	IRKD91/12	D-37
IRHM7254	H-10	IRHY9130CM	H-11	IRKCL240-10S10	G-37	IRKD91/14	D-37
IRHM7254SE	H-12	IRHY9230CM	H-11	IRKCL240-12S20	G-37	IRKD91/16	D-37
IRHM7260	H-10	IRKC166-04	D-37	IRKCL240-14S20	G-37	IRKDL132-06S10	G-37
IRHM7264SE	H-12	IRKC166-08	D-37	IRKCL240-20S30	G-37	IRKDL132-10S10	G-37
IRHM7360	H-10	IRKC166-12	D-37	IRKCL240-25S30	G-37	IRKDL132-12S20	G-37
IRHM7360SE	H-12	IRKC166-16	D-37	IRKDL166-04	D-37	IRKDL132-14S20	G-37
IRHM7450	H-10	IRKC166-20	D-37	IRKDL166-08	D-37	IRKDL240-06S10	G-37
IRHM7450SE	H-12	IRKC196-04	D-37	IRKDL166-12	D-37	IRKDL240-10S10	G-37
IRHM7460SE	H-12	IRKC196-08	D-37	IRKDL166-16	D-37	IRKDL240-12S20	G-37
IRHM7C50SE	H-12	IRKC196-12	D-37	IRKDL166-20	D-37	IRKDL240-14S20	G-37
IRHM8054	H-10	IRKC196-16	D-37	IRKDL196-04	D-37	IRKDL240-20S30	G-37
IRHM8064	H-10	IRKC196-20	D-37	IRKDL196-08	D-37	IRKDL240-25S30	G-37
IRHM8130	H-10	IRKC196-24	D-37	IRKDL196-12	D-37	IRKDL450-16S20	G-37
IRHM8150	H-10	IRKC236-04	D-37	IRKDL196-16	D-37	IRKDL450-20S20	G-37
IRHM8160	H-10	IRKC236-08	D-37	IRKDL196-20	D-37	IRKDL450-25S20	G-37
IRHM8230	H-10	IRKC236-12	D-37	IRKDL196-24	D-37	IRKE166-04	D-35
IRHM8250	H-10	IRKC236-16	D-37	IRKD236-04	D-37	IRKE166-08	D-35



## Index

IRKE166-12	D-35	IRKH105/06	D-58	IRKH41/12	D-57	IRKJ236-08	D-37
IRKE166-16	D-35	IRKH105/08	D-58	IRKH41/14	D-57	IRKJ236-12	D-37
IRKE166-20	D-35	IRKH105/10	D-58	IRKH41/16	D-57	IRKJ236-16	D-37
IRKE196-04	D-35	IRKH105/12	D-58	IRKH430-16	D-59	IRKJ236-20	D-38
IRKE196-08	D-35	IRKH105/14	D-58	IRKH430-18	D-59	IRKJ236-22	D-38
IRKE196-12	D-35	IRKH105/16	D-58	IRKH430-20	D-59	IRKJ236-24	D-38
IRKE196-16	D-35	IRKH136-04	D-58	IRKH500-08	D-59	IRKJ250-04	D-38
IRKE196-20	D-35	IRKH136-08	D-58	IRKH500-12	D-59	IRKJ250-08	D-38
IRKE236-04	D-35	IRKH136-12	D-58	IRKH500-14	D-59	IRKJ250-12	D-38
IRKE236-08	D-35	IRKH136-14	D-58	IRKH500-16	D-59	IRKJ250-16	D-38
IRKE236-12	D-35	IRKH136-14D20	D-60	IRKH56/04	D-57	IRKJ250-20	D-38
IRKE236-16	D-35	IRKH136-16	D-58	IRKH56/06	D-57	IRKJ270-04	D-38
IRKE236-20	D-35	IRKH136-16D25	D-60	IRKH56/08	D-57	IRKJ270-08	D-38
IRKE236-24	D-35	IRKH142-08	D-58	IRKH56/10	D-57	IRKJ270-12	D-38
IRKE250-04	D-35	IRKH142-12	D-58	IRKH56/12	D-57	IRKJ270-16	D-38
IRKE250-08	D-36	IRKH142-14D20	D-60	IRKH56/14	D-57	IRKJ270-20	D-38
IRKE250-12	D-36	IRKH142-16	D-58	IRKH56/16	D-57	IRKJ270-24	D-38
IRKE250-16	D-36	IRKH142-16D25	D-60	IRKH71/04	D-57	IRKJ270-30	D-38
IRKE250-20	D-36	IRKH142-18	D-58	IRKH71/06	D-57	IRKJ320-04	D-38
IRKE270-04	D-36	IRKH142-18D28	D-60	IRKH71/08	D-57	IRKJ320-08	D-38
IRKE270-08	D-36	IRKH142-20	D-58	IRKH71/10	D-57	IRKJ320-12	D-38
IRKE270-12	D-36	IRKH142-20D32	D-60	IRKH71/12	D-57	IRKJ320-16	D-38
IRKE270-16	D-36	IRKH162-04	D-58	IRKH71/14	D-57	IRKJ320-20	D-38
IRKE270-20	D-36	IRKH162-08	D-58	IRKH71/16	D-57	IRKJ56/04	D-36
IRKE270-24	D-36	IRKH162-12	D-58	IRKH91/04	D-57	IRKJ56/06	D-36
IRKE270-30	D-36	IRKH162-14	D-58	IRKH91/06	D-57	IRKJ56/08	D-36
IRKE320-04	D-36	IRKH162-14D20	D-60	IRKH91/08	D-58	IRKJ56/10	D-36
IRKE320-08	D-36	IRKH162-16	D-58	IRKH91/10	D-58	IRKJ56/12	D-36
IRKE320-12	D-36	IRKH162-16D25	D-60	IRKH91/12	D-58	IRKJ56/14	D-36
IRKE320-16	D-36	IRKH170-04	D-59	IRKH91/14	D-58	IRKJ56/16	D-36
IRKE320-20	D-36	IRKH170-08	D-59	IRKH91/16	D-58	IRKJ71/04	D-36
IRKE56/04	D-34	IRKH170-12	D-59	IRKHF102-06H	F-48	IRKJ71/06	D-36
IRKE56/06	D-34	IRKH170-14	D-59	IRKHF102-08H	F-48	IRKJ71/08	D-36
IRKE56/08	D-34	IRKH170-14D20	D-60	IRKHF102-12H	F-48	IRKJ71/10	D-37
IRKE56/10	D-34	IRKH170-16	D-59	IRKHF112-04H	F-48	IRKJ71/12	D-37
IRKE56/12	D-34	IRKH170-16D25	D-60	IRKHF112-08H	F-48	IRKJ71/14	D-37
IRKE56/14	D-34	IRKH230-08	D-59	IRKHF132-04H	F-48	IRKJ71/16	D-37
IRKE56/16	D-34	IRKH230-12	D-59	IRKHF132-08H	F-48	IRKJ91/04	D-37
IRKE71/04	D-34	IRKH230-14D20	D-60	IRKHF152-04H	F-48	IRKJ91/06	D-37
IRKE71/06	D-34	IRKH230-16	D-59	IRKHF152-08H	F-48	IRKJ91/08	D-37
IRKE71/08	D-34	IRKH230-16D25	D-60	IRKHF180-04H	F-48	IRKJ91/10	D-37
IRKE71/10	D-34	IRKH230-18	D-59	IRKHF180-08H	F-48	IRKJ91/12	D-37
IRKE71/12	D-34	IRKH230-18D28	D-60	IRKHF180-12H	F-48	IRKJ91/14	D-37
IRKE71/14	D-34	IRKH230-20	D-59	IRKHF200-04H	F-48	IRKJ91/16	D-37
IRKE71/16	D-34	IRKH230-20D32	D-60	IRKHF200-08H	F-48	IRKJL132-06S10	G-37
IRKE91/04	D-34	IRKH250-04	D-59	IRKHF200-12H	F-48	IRKJL132-10S10	G-37
IRKE91/06	D-34	IRKH250-08	D-59	IRKHF72-06H	F-48	IRKJL132-12S20	G-37
IRKE91/08	D-35	IRKH250-12	D-59	IRKHF72-08H	F-48	IRKJL132-14S20	G-37
IRKE91/10	D-35	IRKH250-14	D-59	IRKHF72-12H	F-48	IRKJL240-06S10	G-37
IRKE91/12	D-35	IRKH250-14D20	D-60	IRKHF82-04H	F-48	IRKJL240-10S10	G-37
IRKE91/14	D-35	IRKH250-16	D-59	IRKHF82-08H	F-48	IRKJL240-12S20	G-37
IRKE91/16	D-35	IRKH250-16D25	D-60	IRKJ166-04	D-37	IRKJL240-14S20	G-37
IRKEL132-06S10	G-35	IRKH26/04	D-57	IRKJ166-08	D-37	IRKJL240-20S30	G-37
IRKEL132-10S10	G-35	IRKH26/06	D-57	IRKJ166-12	D-37	IRKJL240-25S30	G-37
IRKEL132-12S20	G-35	IRKH26/08	D-57	IRKJ166-16	D-37	IRKL105/04	D-58
IRKEL132-14S20	G-35	IRKH26/10	D-57	IRKJ166-20	D-37	IRKL105/06	D-58
IRKEL240-06S10	G-36	IRKH26/12	D-57	IRKJ196-04	D-37	IRKL105/08	D-58
IRKEL240-10S10	G-36	IRKH26/14	D-57	IRKJ196-08	D-37	IRKL105/10	D-58
IRKEL240-12S20	G-36	IRKH26/16	D-57	IRKJ196-12	D-37	IRKL105/12	D-58
IRKEL240-14S20	G-36	IRKH41/04	D-57	IRKJ196-16	D-37	IRKL105/14	D-58
IRKEL240-20S30	G-36	IRKH41/06	D-57	IRKJ196-20	D-37	IRKL105/16	D-58
IRKEL240-25S30	G-36	IRKH41/08	D-57	IRKJ196-24	D-37	IRKL136-04	D-58
IRKEL105/04	D-58	IRKH41/10	D-57	IRKJ236-04	D-37	IRKL136-08	D-58

International  
**IOR** Rectifier

B-11

## Index

IRLIZ34N	F-17	JANSF2N7281	H-11	JANTX2N6806	H-16	JANTXV2N7225U	H-15
IRLIZ44N	F-17	JANSF2N7394	H-10	JANTX2N6845	H-17	JANTXV2N7227	H-18
IRLL014N	F-6	JANSF2N7394U	H-7	JANTX2N6847	H-17	JANTXV2N7227U	H-15
IRLL110	F-6	JANSF2N7261	H-9	JANTX2N6849	H-17	JANTXV2N7228	H-18
IRLL2705	F-6	JANSF2N7262	H-9	JANTX2N6851	H-17	JANTXV2N7228U	H-15
IRLL3303	F-6	JANSF2N7268	H-10	JANTX2N7218	H-18	JANTXV2N7236	H-19
IRLML2402	F-1	JANSF2N7268U	H-7	JANTX2N7218U	H-15	JANTXV2N7236U	H-15
IRLML2803	F-1	JANSF2N7269	H-10	JANTX2N7219	H-18	JANTXV2N7237	H-19
IRLML5103	F-1	JANSF2N7269U	H-7	JANTX2N7219U	H-15	JANTXV2N7237U	H-16
IRLML6302	F-1	JANSF2N7270	H-10	JANTX2N7221	H-18	JANTXV2N7334	H-14
IRLMS1503	F-2	JANSF2N7270U	H-7	JANTX2N7221U	H-15	JANTXV2N7335	H-14
IRLMS5703	F-2	JANSF2N7280	H-11	JANTX2N7222	H-18	JANTXV2N7336	H-14
IRLMS6702	F-2	JANSF2N7281	H-11	JANTX2N7222U	H-15	KBPC1005	D-5
IRLR014	F-7	JANSF2N7394	H-10	JANTX2N7224	H-18	KBPC101	D-5
IRLR024N	F-7	JANSF2N7394U	H-7	JANTX2N7224U	H-15	KBPC102	D-5
IRLR110	F-7	JANSF2N7261	H-9	JANTX2N7225	H-18	KBPC104	D-5
IRLR120	F-7	JANSF2N7262	H-9	JANTX2N7225U	H-15	KBPC106	D-5
IRLR2703	F-7	JANSF2N7268	H-10	JANTX2N7227	H-18	KBPC108	D-5
IRLR2705	F-7	JANSF2N7268U	H-7	JANTX2N7227U	H-15	KBPC110	D-5
IRLR2905	F-7	JANSF2N7269	H-10	JANTX2N7228	H-18	KBPC6005	D-5
IRLR3103	F-7	JANSF2N7269U	H-7	JANTX2N7228U	H-15	KBPC601	D-5
IRLU014	F-8	JANSF2N7270	H-10	JANTX2N7236	H-19	KBPC602	D-5
IRLU024N	F-8	JANSF2N7270U	H-7	JANTX2N7236U	H-15	KBPC604	D-5
IRLU110	F-8	JANSF2N7280	H-11	JANTX2N7237	H-19	KBPC606	D-5
IRLU120	F-8	JANSF2N7281	H-11	JANTX2N7237U	H-15	KBPC608	D-5
IRLU2703	F-8	JANSF2N7394	H-10	JANTX2N7334	H-14	KBPC610	D-5
IRLU2705	F-8	JANSF2N7394U	H-7	JANTX2N7335	H-14	KBPC8005	D-5
IRLU2905	F-8	JANSR2N7261	H-9	JANTX2N7336	H-14	KBPC801	D-5
IRLU3103	F-8	JANSR2N7262	H-9	JANTXV2N6756	H-16	KBPC802	D-6
IRLZ14	F-14	JANSR2N7268	H-10	JANTXV2N6758	H-16	KBPC804	D-6
IRLZ14S	F-11	JANSR2N7268U	H-7	JANTXV2N6760	H-16	KBPC806	D-6
IRLZ24N	F-14	JANSR2N7269	H-10	JANTXV2N6762	H-16	KBPC808	D-6
IRLZ24NS	F-11	JANSR2N7269U	H-7	JANTXV2N6764	H-16	KBPC810	D-6
IRLZ24S	F-11	JANSR2N7270	H-11	JANTXV2N6766	H-16	MBR1035	G-3
IRLZ34N	F-14	JANSR2N7270U	H-7	JANTXV2N6768	H-16	MBR1045	G-3
IRLZ34NS	F-11	JANSR2N7380	H-11	JANTXV2N6770	H-16	MBR1535CT	G-6
IRLZ34S	F-11	JANSR2N7381	H-11	JANTXV2N6782	H-17	MBR1545CT	G-6
IRLZ44N	F-14	JANSR2N7382	H-11	JANTXV2N6784	H-17	MBR1635	G-3
IRLZ44NS	F-11	JANSR2N7383	H-11	JANTXV2N6786	H-17	MBR1645	G-3
IRSF3010	F-49	JANSR2N7389	H-9	JANTXV2N6788	H-17	MBR20100CT	G-6
IRSF3011	F-49	JANSR2N7390	H-9	JANTXV2N6790	H-17	MBR2035CT	G-6
IRSF3021	F-49	JANSR2N7394	H-11	JANTXV2N6792	H-17	MBR2045CT	G-6
IRSF3031	F-49	JANSR2N7394U	H-7	JANTXV2N6794	H-17	MBR2080CT	G-6
IRP6VRM1	C-13	JANTX2N6756	H-16	JANTXV2N6796	H-17	MBR2090CT	G-6
IRPT1053	C-4	JANTX2N6758	H-16	JANTXV2N6798	H-17	MBR2535CT	G-6
IRPT1056	C-10	JANTX2N6760	H-16	JANTXV2N6800	H-17	MBR2545CT	G-6
IRPT2051	C-7	JANTX2N6762	H-16	JANTXV2N6802	H-17	MBR3035PT	G-7
IRPT5051	C-1	JANTX2N6764	H-16	JANTXV2N6804	H-16	MBR3045PT	G-7
JANS2N6849	H-17	JANTX2N6766	H-16	JANTXV2N6806	H-16	MBR4045PT	G-7
JANS2N6851	H-17	JANTX2N6768	H-16	JANTXV2N6845	H-17	MBR4060PT	G-7
JANS2N7236	H-18	JANTX2N6770	H-16	JANTXV2N6847	H-17	MBR6045WT	G-7
JANS2N7236U	H-15	JANTX2N6782	H-17	JANTXV2N6849	H-17	MBR735	G-3
JANS2N7237	H-19	JANTX2N6784	H-17	JANTXV2N6851	H-17	MBR745	G-3
JANS2N7237U	H-15	JANTX2N6786	H-17	JANTXV2N7218	H-18	MBR7535	G-4
JANSF2N7261	H-9	JANTX2N6788	H-17	JANTXV2N7218U	H-15	MBR7545	G-4
JANSF2N7262	H-9	JANTX2N6790	H-17	JANTXV2N7219	H-18	MBRB1535CT	G-5
JANSF2N7268	H-10	JANTX2N6792	H-17	JANTXV2N7219U	H-15	MBRB1545CT	G-5
JANSF2N7268U	H-7	JANTX2N6794	H-17	JANTXV2N7221	H-18	MBRB20100CT	G-5
JANSF2N7269	H-10	JANTX2N6796	H-17	JANTXV2N7221U	H-15	MBRB2080CT	G-5
JANSF2N7269U	H-7	JANTX2N6798	H-17	JANTXV2N7222	H-18	MBRB2090CT	G-5
JANSF2N7270	H-10	JANTX2N6800	H-17	JANTXV2N7222U	H-15	P101	D-61
JANSF2N7270U	H-7	JANTX2N6802	H-17	JANTXV2N7224	H-18	P102	D-61
JANSF2N7280	H-11	JANTX2N6804	H-16	JANTXV2N7224U	H-15	P102KW	D-61
				JANTXV2N7225	H-18		



# Index

International  
**IOR** Rectifier

P102W	D-61	PVI1050	E-10	SC175H100A	G-16	SD1100C08L	D-28
P103	D-61	PVI5013R	E-10	SC175H100AWB	G-16	SD1100C12C	D-27
P103KW	D-61	PVI5050	E-10	SC175H100S	G-17	SD1100C12L	D-28
P103W	D-61	PVI5080	E-10	SC175H100SWB	G-17	SD1100C16C	D-27
P104	D-61	PVI5100	E-10	SC175S045A	G-17	SD1100C16L	D-28
P104KW	D-61	PVN012	E-7	SC175S045AWB	G-17	SD1100C20C	D-27
P104W	D-61	PVO402P	E-7	SC175S045S	G-17	SD1100C20L	D-28
P105	D-61	PVR1300	E-9	SC175S045SWB	G-17	SD1100C25C	D-27
P105KW	D-61	PVR1301	E-9	SC175S060A	G-17	SD1100C25L	D-28
P105W	D-61	PVR2300	E-9	SC175S060AWB	G-17	SD1100C30C	D-27
P121	D-61	PVR3300	E-9	SC200H045S	G-17	SD1100C30L	D-28
P122	D-61	PVR3301	E-9	SC200H045S	G-17	SD1100C32C	D-27
P123	D-61	PVT312	E-7	SC200H045S	G-17	SD1100C32L	D-28
P124	D-61	PVT312L	E-7	SC200H045SWB	G-17	SD1500C04L	D-28
P125	D-61	PVT322	E-7	SC200H045SWB	G-17	SD1500C08L	D-28
P131	D-61	PVT412	E-7	SC200H045SWB	G-17	SD1500C12L	D-28
P132	D-61	PVT412L	E-7	SC200H100S	G-17	SD1500C16L	D-28
P133	D-61	PVT422	E-7	SC200H100S	G-17	SD1500C20L	D-28
P134	D-61	PVU414	E-7	SC200H100S	G-17	SD1500C25L	D-28
P135	D-61	SC043H100SWB	G-16	SC200H100SWB	G-17	SD1500C30L	D-28
P401	D-61	SC043R100SWB	G-16	SC200H100SWB	G-17	SD150N04PV	D-22
P401KW	D-61	SC043S040SWB	G-16	SC200H100SWB	G-17	SD150N08PV	D-22
P401W	D-61	SC043S060SWB	G-16	SC200R015S	G-17	SD150N12PV	D-22
P402	D-61	SC066H100AWB	G-16	SC200R015SWB	G-17	SD150N16PV	D-22
P402KW	D-61	SC066H100SWB	G-16	SC200S030S	G-17	SD150N20PC	D-21
P402W	D-61	SC066S040AWB	G-16	SC200S030S	G-17	SD150N25PC	D-21
P403	D-61	SC066S040SWB	G-16	SC200S030S	G-17	SD153N04S10PV	G-30
P403KW	D-61	SC066S060AWB	G-16	SC200S030SWB	G-17	SD153N08S10PV	G-31
P403W	D-61	SC066S060SWB	G-16	SC200S030SWB	G-17	SD153N10S10PV	G-31
P404	D-61	SC090H045A	G-16	SC200S030SWB	G-17	SD153N12S15PV	G-31
P404KW	D-61	SC090H045AWB	G-16	SC200S045S	G-17	SD153N14S15PV	G-31
P404W	D-61	SC090H150A	G-16	SC200S045S	G-17	SD153N16S15PV	G-31
P405	D-61	SC090H150AWB	G-16	SC200S045S	G-17	SD1553C18S20K	G-34
P405KW	D-61	SC090S045A	G-16	SC200S045SWB	G-17	SD1553C18S30K	G-34
P405W	D-61	SC090S045AWB	G-16	SC200S045SWB	G-17	SD1553C22S20K	G-34
P421	D-61	SC125H045A	G-16	SC200S045SWB	G-17	SD1553C22S30K	G-34
P422	D-61	SC125H045AWB	G-16	SC275H045S	G-17	SD1553C25S20K	G-34
P423	D-61	SC125H045S	G-16	SC275H045SWB	G-17	SD1553C25S30K	G-34
P424	D-61	SC125H045SWB	G-16	SC275H100S	G-17	SD1553C28S30K	G-34
P425	D-61	SC125H100A	G-16	SC275H100SWB	G-17	SD1553C30S30K	G-34
P431	D-61	SC125H100AWB	G-16	SC275S030S	G-17	SD1700C24K	D-29
P432	D-61	SC125H100S	G-16	SC275S030SWB	G-17	SD1700C30K	D-29
P433	D-61	SC125H100SWB	G-16	SC275S045S	G-17	SD1700C36K	D-29
P434	D-61	SC125H150A	G-16	SC275S045SWB	G-17	SD1700C40K	D-29
P435	D-61	SC125H150AWB	G-16	SD103N04S10PV	G-30	SD1700C45K	D-29
PVA1052	E-8	SC125R015S	G-16	SD103N08S10PV	G-30	SD2000C04L	D-28
PVA1054	E-8	SC125R015SWB	G-16	SD103N10S10PV	G-30	SD2000C08L	D-29
PVA1352	E-8	SC125S030A	G-16	SD103N12S15PV	G-30	SD2000C10L	D-29
PVA1354	E-8	SC125S030AWB	G-16	SD103N14S15PV	G-30	SD200N04PV	D-22
PVA2352	E-8	SC125S045A	G-16	SD103N16S15PV	G-30	SD200N08PV	D-22
PVA3054	E-8	SC125S045AWB	G-16	SD103N20S20PC	G-30	SD200N12PV	D-22
PVA3055	E-8	SC125S045S	G-16	SD103N25S20PC	G-30	SD200N16PV	D-22
PVA3324	E-8	SC125S045SWB	G-16	SD1053C18S20L	G-33	SD200N20PC	D-22
PVA3354	E-8	SC125S060A	G-16	SD1053C18S30L	G-34	SD200N24PC	D-22
PVAZ172N	E-8	SC125S060AWB	G-16	SD1053C22S20L	G-34	SD203N04S10PV	G-31
PVD1052	E-8	SC150H045A	G-16	SD1053C22S30L	G-34	SD203N08S10PV	G-31
PVD1054	E-8	SC150H045AWB	G-16	SD1053C25S20L	G-34	SD203N10S10PV	G-31
PVD1352	E-8	SC150R015A	G-16	SD1053C25S30L	G-34	SD203N12S15PV	G-31
PVD1354	E-8	SC150R015AWB	G-16	SD1053C28S30L	G-34	SD203N14S15PV	G-31
PVD2352	E-8	SC150S045A	G-16	SD1053C30S30L	G-34	SD203N16S15PV	G-31
PVD3354	E-8	SC150S045AWB	G-16	SD1100C04C	D-27	SD203N20S20PC	G-31
PVDZ172N	E-8	SC175H045S	G-16	SD1100C04L	D-28	SD203N25S20PC	G-31
PVG612	E-7	SC175H045SWB	G-16	SD1100C08C	D-27	SD2053C32S50R	G-34

# Index

SD2053C36S50R .....	G-34	SD400N12PV .....	D-26	SD800C24L .....	D-28	ST1280C06K0 .....	D-51
SD2053C40S50R .....	G-34	SD400N16PV .....	D-26	SD800C30L .....	D-28	ST173C10CF.0 .....	F-45
SD2053C45S50R .....	G-34	SD400N20PC .....	D-25	SD800C36L .....	D-28	ST173C12CF.0 .....	F-45
SD233N30S50PC .....	G-31	SD400N24PC .....	D-25	SD800C40L .....	D-28	ST173S10PF.0 .....	F-44
SD233N36S50PC .....	G-31	SD403C04S10C .....	G-32	SD800C45L .....	D-28	ST173S12PF.0 .....	F-44
SD233N40S50PC .....	G-32	SD403C08S10C .....	G-32	SD803C04S10C .....	G-33	ST180C04C0 .....	D-48
SD233N45S50PC .....	G-32	SD403C10S10C .....	G-32	SD803C08S10C .....	G-33	ST180C08C0 .....	D-48
SD2500C12K .....	D-29	SD403C12S15C .....	G-32	SD803C10S10C .....	G-33	ST180C12C0 .....	D-48
SD2500C16K .....	D-29	SD403C14S15C .....	G-32	SD803C12S15C .....	G-33	ST180C16C0 .....	D-48
SD2500C20K .....	D-29	SD403C16S15C .....	G-32	SD803C14S15C .....	G-33	ST180C18C0 .....	D-48
SD2500C25K .....	D-29	SD453N12S20PC .....	G-32	SD803C16S15C .....	G-33	ST180C20C0 .....	D-48
SD253N04S15PV .....	G-31	SD453N12S30PC .....	G-32	SD823C12S20C .....	G-33	ST180S04POV .....	D-46
SD253N08S15PV .....	G-31	SD453N16S20PC .....	G-32	SD823C12S30C .....	G-33	ST180S08POV .....	D-46
SD253N10S15PV .....	G-31	SD453N16S30PC .....	G-32	SD823C16S20C .....	G-33	ST180S12POV .....	D-46
SD253N12S20PV .....	G-31	SD453N20S20PC .....	G-32	SD823C16S30C .....	G-33	ST180S16P0 .....	D-46
SD253N14S20PV .....	G-31	SD453N20S30PC .....	G-32	SD823C20S20C .....	G-33	ST180S18P0 .....	D-46
SD253N16S20PV .....	G-31	SD453N25S20PC .....	G-32	SD823C20S30C .....	G-33	ST180S20P0 .....	D-46
SD263C30S50L .....	G-33	SD453N25S30PC .....	G-32	SD823C25S20C .....	G-33	ST183C04CF.0 .....	F-45
SD263C36S50L .....	G-33	SD5000C20R .....	D-29	SD823C25S30C .....	G-33	ST183C08CF.0 .....	F-45
SD263C40S50L .....	G-33	SD5000C24R .....	D-29	SD8500C04R .....	D-30	ST183S04PF.0 .....	F-44
SD263C45S50L .....	G-33	SD5000C26R .....	D-29	SD8500C06R .....	D-30	ST183S08PF.0 .....	F-44
SD3000C04K .....	D-29	SD5000C30R .....	D-30	SD853C30S50K .....	G-34	ST1900C45R0 .....	D-52
SD3000C08K .....	D-29	SD500N30PC .....	D-26	SD853C36S50K .....	G-34	ST1900C46R0 .....	D-52
SD3000C10K .....	D-29	SD500N36PC .....	D-26	SD853C40S50K .....	G-34	ST1900C48R0 .....	D-52
SD300C04C .....	D-27	SD500N40PC .....	D-26	SD853C45S50K .....	G-34	ST1900C50R0 .....	D-52
SD300C08C .....	D-27	SD500N45PC .....	D-26	SM4001TR .....	D-14	ST1900C52R0 .....	D-52
SD300C12C .....	D-27	SD51 .....	G-4	SM4002TR .....	D-14	ST203C10CF.0 .....	F-45
SD300C16C .....	D-27	SD553C30S50L .....	G-33	SM4003TR .....	D-14	ST203C12CF.0 .....	F-45
SD300C20C .....	D-27	SD553C36S50L .....	G-33	SM4004TR .....	D-14	ST203S10PF.0 .....	F-44
SD300C25C .....	D-27	SD553C40S50L .....	G-33	SM4005TR .....	D-14	ST203S12PF.0 .....	F-44
SD300C28C .....	D-27	SD553C45S50L .....	G-33	SM4006TR .....	D-14	ST2100C35R0 .....	D-52
SD300C32C .....	D-27	SD6000C12R .....	D-30	SM4007TR .....	D-14	ST2100C36R0 .....	D-52
SD300N04PV .....	D-25	SD6000C16R .....	D-30	SPA4191 .....	E-11	ST2100C38R0 .....	D-52
SD300N08PV .....	D-25	SD6000C20R .....	D-30	SPA6191 .....	E-11	ST2100C40R0 .....	D-52
SD300N12PV .....	D-25	SD6000C25R .....	D-30	ST083S04PF.0 .....	F-44	ST2100C42R0 .....	D-52
SD300N16PV .....	D-25	SD600N04PC .....	D-26	ST083S08PF.0 .....	F-44	ST223C04CF.0 .....	F-45
SD300N20PC .....	D-25	SD600N08PC .....	D-26	ST083S10PF.0 .....	F-44	ST223C08CF.0 .....	F-45
SD300N25PC .....	D-25	SD600N12PC .....	D-26	ST083S12PF.0 .....	F-44	ST223S04PF.0 .....	F-44
SD300N28PC .....	D-25	SD600N16PC .....	D-26	ST1000C12K0 .....	D-51	ST223S08PF.0 .....	F-44
SD300N32PC .....	D-25	SD600N20PC .....	D-26	ST1000C14K0 .....	D-51	ST230C04C0 .....	D-48
SD303C04S10C .....	G-32	SD600N25PC .....	D-26	ST1000C16K0 .....	D-51	ST230C08C0 .....	D-48
SD303C08S10C .....	G-32	SD600N28PC .....	D-26	ST1000C18K0 .....	D-51	ST230C12C0 .....	D-48
SD303C10S10C .....	G-32	SD600N32PC .....	D-26	ST1000C20K0 .....	D-51	ST230C14C0 .....	D-48
SD303C12S15C .....	G-32	SD603C04S10C .....	G-32	ST1000C22K0 .....	D-51	ST230C16C0 .....	D-48
SD303C14S15C .....	G-32	SD603C08S10C .....	G-32	ST1000C24K0 .....	D-51	ST230S04POV .....	D-47
SD303C16S15C .....	G-32	SD603C10S10C .....	G-32	ST1000C26K0 .....	D-51	ST230S08POV .....	D-47
SD303C20S20C .....	G-32	SD603C12S15C .....	G-32	ST103S04PF.0 .....	F-44	ST230S12POV .....	D-47
SD303C25S20C .....	G-32	SD603C14S15C .....	G-32	ST103S08PF.0 .....	F-44	ST230S14P0 .....	D-47
SD3553C16S50R .....	G-34	SD603C16S15C .....	G-33	ST110S04POV .....	D-45	ST230S16P0 .....	D-47
SD3553C20S50R .....	G-34	SD603C20S20C .....	G-33	ST110S08POV .....	D-45	ST2600C20R0 .....	D-52
SD3553C25S50R .....	G-34	SD603C22S20C .....	G-33	ST110S12POV .....	D-45	ST2600C22R0 .....	D-52
SD4000C30R .....	D-29	SD700C30L .....	D-28	ST110S14P0 .....	D-46	ST2600C24R0 .....	D-52
SD4000C34R .....	D-29	SD700C36L .....	D-28	ST110S16P0 .....	D-46	ST2600C26R0 .....	D-52
SD4000C38R .....	D-29	SD700C40L .....	D-28	ST1200C12K0 .....	D-51	ST2600C28R0 .....	D-52
SD4000C40R .....	D-29	SD700C45L .....	D-28	ST1200C14K0 .....	D-51	ST2600C30R0 .....	D-52
SD400C04C .....	D-27	SD703C12S20L .....	G-33	ST1200C16K0 .....	D-51	ST280C04C0 .....	D-48
SD400C08C .....	D-27	SD703C12S30L .....	G-33	ST1200C18K0 .....	D-51	ST280C06C0 .....	D-48
SD400C12C .....	D-27	SD703C16S20L .....	G-33	ST1200C20K0 .....	D-51	ST280CH04C0 .....	D-48
SD400C16C .....	D-27	SD703C16S30L .....	G-33	ST1230C08K0 .....	D-51	ST280CH06C0 .....	D-48
SD400C20C .....	D-27	SD703C20S20L .....	G-33	ST1230C12K0 .....	D-51	ST280S04POV .....	D-47
SD400C24C .....	D-27	SD703C20S30L .....	G-33	ST1230C14K0 .....	D-51	ST280S06POV .....	D-47
SD400N04PV .....	D-26	SD703C25S20L .....	G-33	ST1230C16K0 .....	D-51	ST300C04C0 .....	D-49
SD400N08PV .....	D-26	SD703C25S30L .....	G-33	ST1280C04K0 .....	D-51	ST300C04L0 .....	D-50

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## Index

ST300C08C0 .....	D-49	ST730C08L0 .....	D-50	T70RIA10 .....	D-53
ST300C08L0 .....	D-50	ST730C12L0 .....	D-50	T70RIA100 .....	D-53
ST300C12C0 .....	D-49	ST730C14L0 .....	D-50	T70RIA120 .....	D-53
ST300C12L0 .....	D-50	ST730C16L0 .....	D-50	T70RIA20 .....	D-53
ST300C16C0 .....	D-49	ST730C18L0 .....	D-50	T70RIA40 .....	D-53
ST300C16L0 .....	D-50	ST733C04LF.0 .....	F-46	T70RIA60 .....	D-53
ST300C18C0 .....	D-49	ST733C08LF.0 .....	F-46	T70RIA80 .....	D-53
ST300C18L0 .....	D-50	ST780C04L0 .....	D-50	T85HF10 .....	D-33
ST300C20C0 .....	D-49	ST780C06L0 .....	D-50	T85HF100 .....	D-33
ST300C20L0 .....	D-50	T110HF10 .....	D-34	T85HF120 .....	D-33
ST300S04P0 .....	D-47	T110HF100 .....	D-34	T85HF140 .....	D-33
ST300S08P0 .....	D-47	T110HF120 .....	D-34	T85HF160 .....	D-34
ST300S12P0 .....	D-47	T110HF140 .....	D-34	T85HF20 .....	D-33
ST300S16P0 .....	D-47	T110HF160 .....	D-34	T85HF40 .....	D-33
ST300S18P0 .....	D-47	T110HF20 .....	D-34	T85HF60 .....	D-33
ST300S20P0 .....	D-47	T110HF40 .....	D-34	T85HF80 .....	D-33
ST303C04CF.0 .....	F-46	T110HF60 .....	D-34	T85HFL100S05 .....	G-35
ST303C04LF.0 .....	F-46	T110HF80 .....	D-34	T85HFL10S02 .....	G-35
ST303C08CF.0 .....	F-46	T40HF10 .....	D-33	T85HFL10S05 .....	G-35
ST303C08LF.0 .....	F-46	T40HF100 .....	D-33	T85HFL20S02 .....	G-35
ST303C10CF.0 .....	F-46	T40HF120 .....	D-33	T85HFL20S05 .....	G-35
ST303C10LF.0 .....	F-46	T40HF140 .....	D-33	T85HFL40S02 .....	G-35
ST303C12CF.0 .....	F-46	T40HF160 .....	D-33	T85HFL40S05 .....	G-35
ST303C12LF.0 .....	F-46	T40HF20 .....	D-33	T85HFL60S02 .....	G-35
ST303S04PF.0 .....	F-45	T40HF40 .....	D-33	T85HFL60S05 .....	G-35
ST303S08PF.0 .....	F-45	T40HF60 .....	D-33	T85HFL80S05 .....	G-35
ST303S10PF.0 .....	F-45	T40HF80 .....	D-33	T90RIA10 .....	D-53
ST303S12PF.0 .....	F-45	T40HFL100S05 .....	G-35	T90RIA100 .....	D-53
ST3230C10R0 .....	D-52	T40HFL10S02 .....	G-35	T90RIA120 .....	D-53
ST3230C12R0 .....	D-52	T40HFL10S05 .....	G-35	T90RIA20 .....	D-53
ST3230C14R0 .....	D-52	T40HFL20S02 .....	G-35	T90RIA40 .....	D-53
ST3230C16R0 .....	D-52	T40HFL20S05 .....	G-35	T90RIA60 .....	D-53
ST3230C18R0 .....	D-52	T40HFL40S02 .....	G-35	T90RIA80 .....	D-53
ST330C04C0 .....	D-49	T40HFL40S05 .....	G-35		
ST330C04L0 .....	D-50	T40HFL60S02 .....	G-35		
ST330C08C0 .....	D-49	T40HFL60S05 .....	G-35		
ST330C08L0 .....	D-50	T40HFL80S05 .....	G-35		
ST330C12C0 .....	D-49	T50RIA10 .....	D-53		
ST330C12L0 .....	D-50	T50RIA100 .....	D-53		
ST330C14C0 .....	D-49	T50RIA120 .....	D-53		
ST330C14L0 .....	D-50	T50RIA20 .....	D-53		
ST330C16C0 .....	D-49	T50RIA40 .....	D-53		
ST330C16L0 .....	D-50	T50RIA60 .....	D-53		
ST330S04P0 .....	D-47	T50RIA80 .....	D-53		
ST330S08P0 .....	D-47	T70HF10 .....	D-33		
ST330S12P0 .....	D-47	T70HF100 .....	D-33		
ST330S14P0 .....	D-47	T70HF120 .....	D-33		
ST330S16P0 .....	D-47	T70HF140 .....	D-33		
ST333C04CF.0 .....	F-46	T70HF160 .....	D-33		
ST333C04LF.0 .....	F-46	T70HF20 .....	D-33		
ST333C08CF.0 .....	F-46	T70HF40 .....	D-33		
ST333C08LF.0 .....	F-46	T70HF60 .....	D-33		
ST333S04PF.0 .....	F-45	T70HF80 .....	D-33		
ST333S08PF.0 .....	F-45	T70HFL100S05 .....	G-35		
ST380C04C0 .....	D-49	T70HFL10S02 .....	G-35		
ST380C06C0 .....	D-49	T70HFL10S05 .....	G-35		
ST380CH04C0 .....	D-49	T70HFL20S02 .....	G-35		
ST380CH06C0 .....	D-49	T70HFL20S05 .....	G-35		
ST700C12L0 .....	D-50	T70HFL40S02 .....	G-35		
ST700C16L0 .....	D-50	T70HFL40S05 .....	G-35		
ST700C18L0 .....	D-50	T70HFL60S02 .....	G-35		
ST700C20L0 .....	D-50	T70HFL60S05 .....	G-35		
ST700C22L0 .....	D-50	T70HFL80S05 .....	G-35		



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# IRPT5051

**POWIRTRAIN®**

## Integrated Power Stage for 15 hp Motor Drives

- 15 hp (11kW) power output
- 380 - 480VAC; 50/60 Hz
- Available as complete system or sub-system assemblies

### Power Assembly

- 3-phase rectifier bridge
- 3-phase ultrafast IGBT inverter
- NTC temperature sensor
- Pin-to-base plate isolation 2500 Vrms
- Easy-to-mount package
- Case temperature range -20°C to 95°C operational

### Driver-PlusBoard

- Capacitor filter with precharge current limit
- Isolated gate drive circuits
- On-board local power supply for gate driver and capacitor precharge control
- MOV surge suppression at input
- Isolated inverter current feedback
- Short circuit, earth/ground fault, over-temperature protection
- Input and output terminals; optional external brake
- Control interface connector

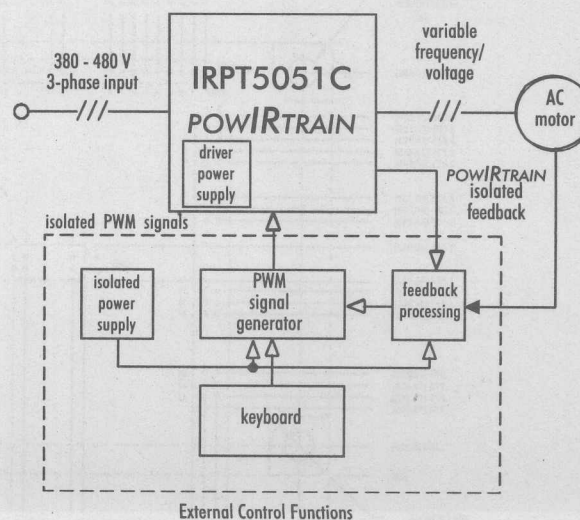
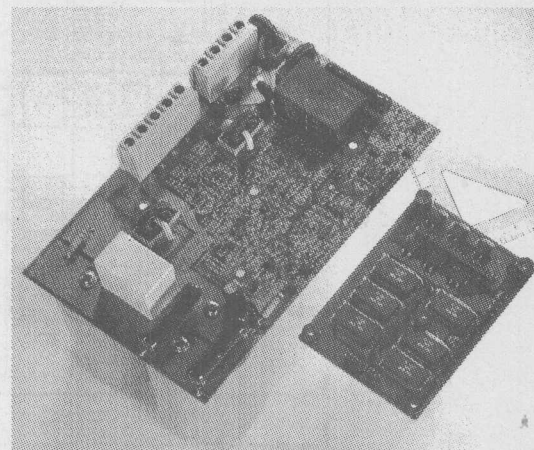
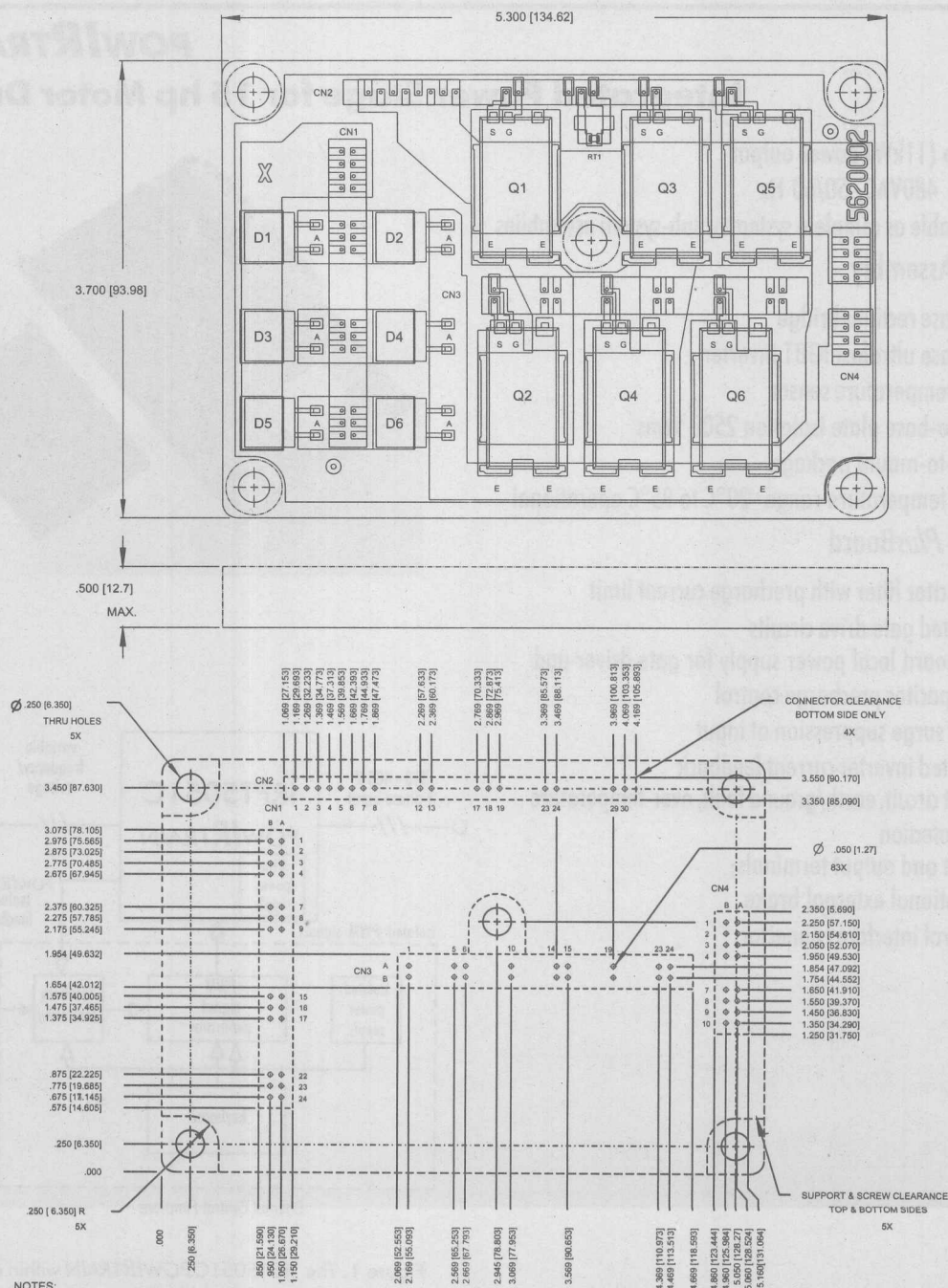


Figure 1. The IRPT5051C POWIRTRAIN within a motor control system

# IRPT5051A Mechanical Specifications



## Specifications IRPT5051

PARAMETER	VALUES	CONDITIONS
<b>Input Power</b>		
Voltage	380V -15% to 480V +10%, 3-phase	
Frequency	50 - 60Hz	
Input Current	40A rms 300 A peak	$T_A = 40^\circ\text{C}$ , $R_{th SA} = 0.075^\circ\text{C/W}$ 10 ms half-cycle non-repetitive surge
<b>Output Power</b>		
Voltage	0 - 480V rms	defined by external PWM control
Nominal Motor hp (kW)	15hp (11kW)	$V_{in} = 440\text{VAC}$
Nominal Motor Current	25A rms	PWM frequency = 4kHz, $f_o = 60\text{Hz}$ , $T_A = 40^\circ\text{C}$ , $R_{th SA} = 0.075^\circ\text{C/W}$
<b>DC Link</b>		
DC link voltage	850V maximum	
<b>Control Inputs</b>		
Control Power	15V $\pm 5\%$ , 200mA positive supply 15V $\pm 5\%$ , 10mA, negative supply	
PWM input signals IN1 - IN6	15V, 10mA, $\pm 10\%$ (max rise/fall time 150nsec)	input signals uninhibited internally
Input resistance IN1 - IN6	720 $\Omega$ $\pm 5\%$	input signals inhibited internally
Pulse deadtime	2.5 $\mu\text{secs}$ , minimum	
Minimum input pulse duration	1.0 $\mu\text{sec}$	
Maximum pulse duration for each upper IGBT	20ms	
RESET	15V active high, CMOS input (min duration 1 $\mu\text{sec}$ )	
SFT CHG	2 mA pull-down to energize relay (overrides internal control)	
<b>Protection</b>		
Output current trip level	65A peak, $\pm 10\%$	
Overtemperature trip level	100 $^\circ\text{C}$ , $\pm 5\%$	
Ground current trip level	40A peak, $\pm 10\%$	
Short circuit shutdown time	1.5 $\mu\text{sec}$ typical	output terminals shorted
<b>Feedback Signals</b>		
Current feedback signal, IFB	100mV/A $\pm 10\%$ max. DC offset 200mV	
Overcurrent trip signal, OI	active high, 15V CMOS	
Overtemp trip signal, OT	active high, 15V CMOS	
BUS RIPPLE	15V high 4.7k pull-up, <0.5V low at 1.0mA; high-to-low transition at $V_{bus} = 82\%$ peak of line voltage	
UV	15V high, 10k pull-up, during UV <0.5 low at 1mA with no UV	
Relay coil feedback, K1FB	15V high when relay coil energized; low when relay coil de-energized	
<b>Capacitor Precharge</b>		
DC bus capacitor precharge time	400msecs max	measured from input line closure; line voltage > 300V
<b>Module</b>		
Isolation Voltage	2500V <sub>RMS</sub> , 60Hz, 1 minute	pin to baseplate isolation
Operating Case Temperature	-20 $^\circ\text{C}$ to 95 $^\circ\text{C}$	
Mounting Torque	5 N-m	M5 screw type
<b>System Environment</b>		
Ambient Operating Temp. Range	0 to 40 $^\circ\text{C}$	90%RH max. (non-condensing)
Storage Temp. range	-20 to 60 $^\circ\text{C}$	90%RH max. (non-condensing)

# IRPT1053

**POWIRTRAIN™**

## Integrated Power Stage for 1 hp Motor Drives

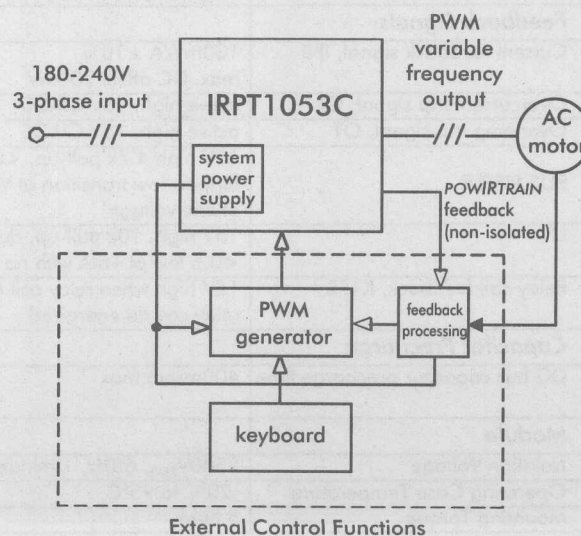
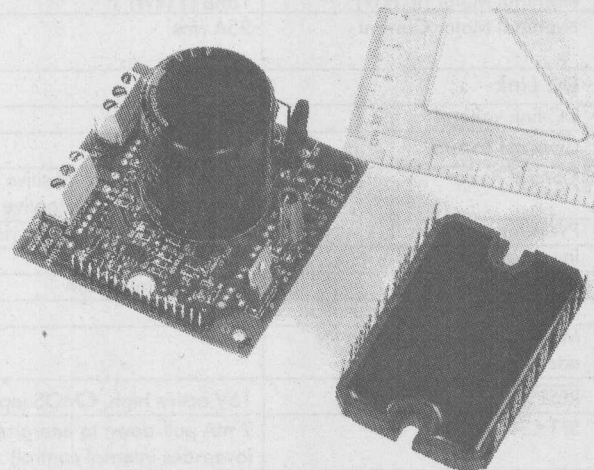
- 1 hp (0.75kW) power output  
Industrial rating at 150% overload for 1 minute
- 180 - 240VAC input
- Designed per UL safety guidelines
- Available as complete system or as sub-system assemblies

### Power Module

- 3-phase rectifier bridge
- 3-phase ultrafast IGBT inverter
- Low inductance (current sense) shunts in positive and negative DC rail
- NTC temperature sensor
- Pin-to-base plate isolation 2500Vrms
- Easy-to-mount two-screw package
- Case temperature range -20°C to 95°C operational

### Driver-PlusBoard

- DC bus capacitor filter with NTC inrush current limiter
- IR2132 monolithic 3-phase HVIC driver
- On-board +15V and +5V power supply
- MOV surge suppression at input
- Control interface with DC bus voltage and current feedback
- Protection for short-circuit, earth/ground fault and overtemperature
- Terminal blocks for 3-phase input and output connections

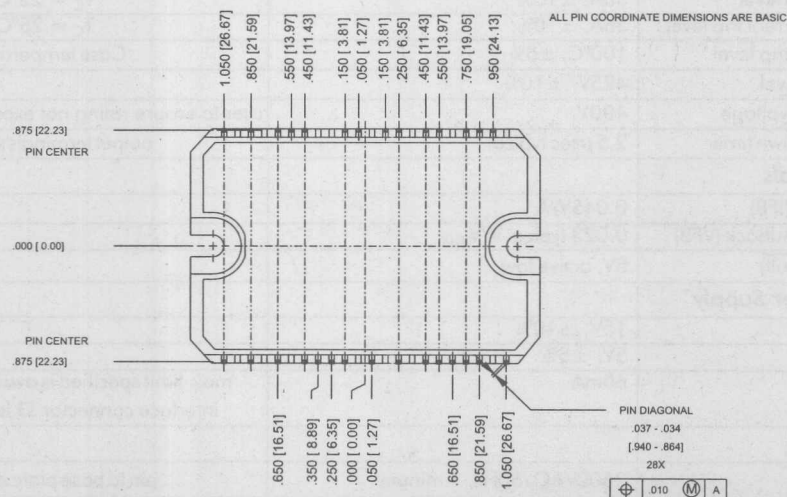
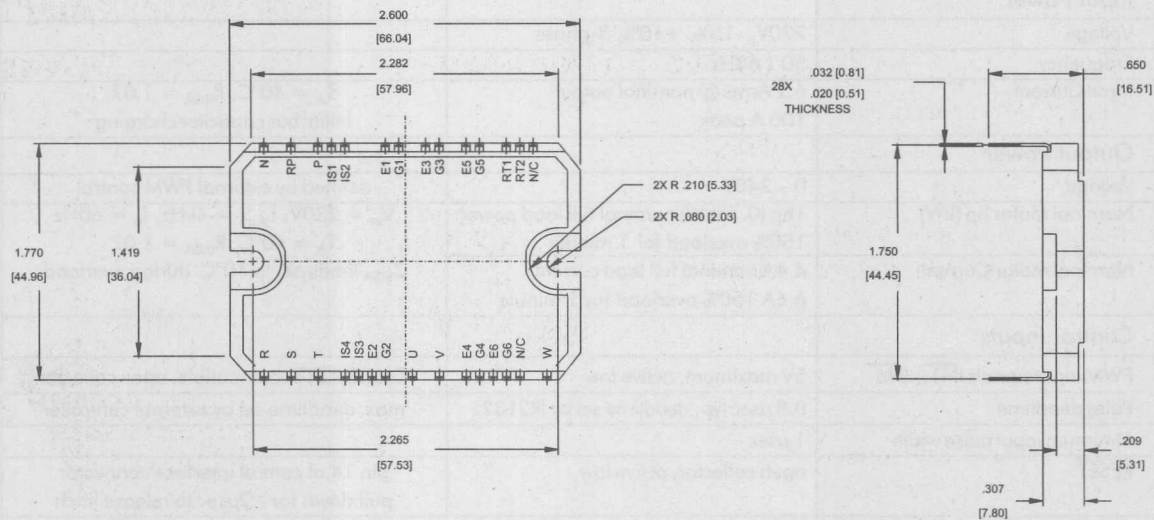


**Figure 1.** The IRPT1053 POWIRTRAIN within a motor control system



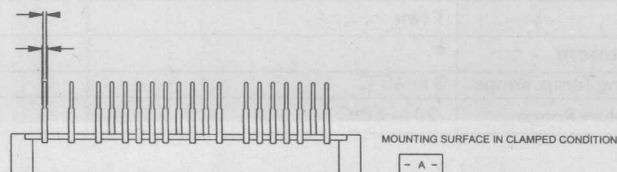
# IRPT1053A Mechanical Specifications

NOTE: Dimensions are in inches [millimeters]



28X (.026 - .024)

28X .040 [1.02]



## Specifications

PARAMETERS	VALUES	CONDITIONS
<b>Input Power</b>		
Voltage	220V, -15%, +10%, 3-phase	
Frequency	50 - 60Hz	
Input Current	6.2 Arms @ nominal output 100 A peak	$T_A = 40^{\circ}\text{C}$ , $R_{thSA} = 1.07$ Initial bus capacitor charging
<b>Output Power</b>		
Voltage	0 - 240V	defined by external PWM control
Nominal Motor hp (kW)	1hp (0.75kW) nominal full load power 150% overload for 1 minute	$V_{in} = 230\text{V}$ , $f_{pwm} = 4\text{kHz}$ , $f_o = 60\text{Hz}$ $T_A = 40^{\circ}\text{C}$ , $R_{thSA} = 1.07$ $Z_{thSA}$ limits $\Delta T_c$ to $10^{\circ}\text{C}$ during overload
Nominal Motor Current	4.4A nominal full load current 6.6A 150% overload for 1 minute	
<b>Control Inputs</b>		
PWM input signals $\overline{\text{INT}} \dots \overline{\text{IN6}}$	5V maximum, active low	CMOS, LSTTL compatible, open collector
Pulse deadtime	0.8 $\mu\text{sec}$ typ. deadtime set by IR2132J	max. deadtime set by external controller
Minimum input pulse width	1 $\mu\text{sec}$	
RESET	open collector, active low	pin 14 of control interface connector pull down for $\geq 2\mu\text{sec}$ to release latch
<b>Protection</b>		
Output current trip level	30A, $\pm 10\%$	$T_C = 25^{\circ}\text{C}$
Earth/gnd fault current trip level	36A, $\pm 10\%$	$T_C = 25^{\circ}\text{C}$
Overtemperature trip level	100 $^{\circ}\text{C}$ , $\pm 5\%$	Case temperature
Overvoltage trip level	425V, $\pm 10\%$	
Maximum DC link voltage	400V	user to ensure rating not exceeded for >30 sec.
Short circuit shutdown time	2.5 $\mu\text{sec}$ typical	output terminals shorted
<b>Feedback Signals</b>		
Current feedback (IFB)	0.045V/A	
DC bus voltage feedback (VFB)	0.023 typical $V/V_{BUS}$	
Fault feedback (Fault)	5V, active low	
<b>On Board Power Supply</b>		
$V_{CC}$	15V, $\pm 10\%$	
$V_{DD}$	5V, $\pm 5\%$	
$I_{CC} + I_{DD}$	60mA	max. limit specified is available on control interface connector J3 for external use
<b>Module</b>		
Isolation Voltage	2500VAC, 60Hz, 1 minute	pin to base plate isolation
Operating Case Temperature	-20 to 95 $^{\circ}\text{C}$	
Mounting Torque	1 Nm	M4 screw type
<b>System Environment</b>		
Ambient Operating Temp. Range	0 to 40 $^{\circ}\text{C}$	90%RH max. (non-condensing)
Storage Temperature Range	-20 to 60 $^{\circ}\text{C}$	90%RH max. (non-condensing)

# IRPT2051

**POWIRTRAIN™**

## Integrated Power Stage for 3 hp Motor Drives

- 3 hp (2.2kW) motor drive  
Industrial rating at 150% overload for 1 minute
- 380-480VAC
- Designed per UL safety guidelines
- Available as complete system or sub-system assemblies

### Power Module

- 3-phase rectifier bridge
- 3-phase ultrafast IGBT inverter
- Brake IGBT and diode
- Low inductance (current sense) shunts in positive and negative DC rail
- NTC temperature sensor
- Pin-to-baseplate isolation 2500V
- Easy-to-mount two-screw package
- Case temperature range -20°C to 95°C operational

### Driver-Plus Board

- DC bus capacitor filter with NTC inrush current limiter
- IR2233 monolithic 3-phase HVIC driver
- Driver stage for brake transistor
- On-board +15V and +5V power supply
- MOV surge suppression at input
- DC bus voltage feedback and current feedback
- Protection for short-circuit, earth/ground fault, overtemperature and overvoltage
- Terminal blocks for 3-phase input/output and brake connections

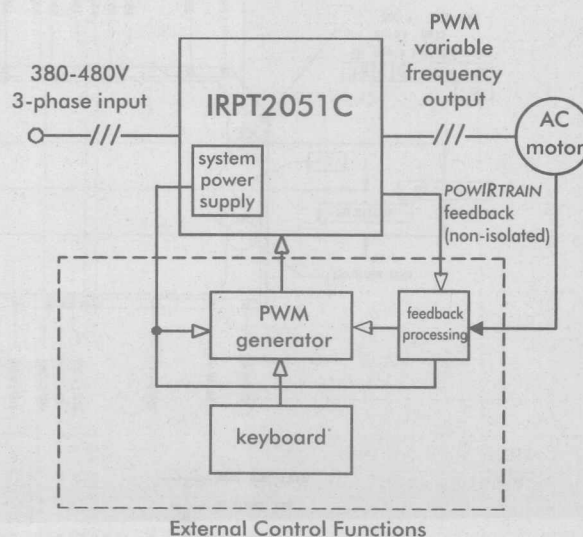
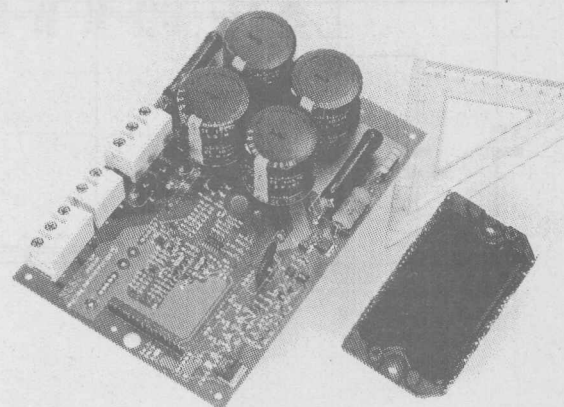


Figure 1. The IRPT2051C POWIRTRAIN within a motor control system





# Specifications: IRPT2051

PARAMETER	VALUES	CONDITIONS
<b>Input Power</b>		
Voltage	380V, -15%, 480V +10%	
Frequency	50 - 60Hz	
Input current	8.26 Arms @ nominal output 125 A peak	T <sub>A</sub> = 40°C, R <sub>thSA</sub> = 0.59°C/W Initial bus capacitor charging
<b>Output Power</b>		
Voltage	0 - 480V	defined by external PWM control
Nominal motor hp (kW)	3hp (2.2kW) nominal full load power 150% overload for 1 minute	R <sub>thSA</sub> = 0.59°C/W, V <sub>in</sub> = 460VAC, f <sub>PWM</sub> = 4kHz f <sub>o</sub> = 60Hz, T <sub>A</sub> = 40°C Z <sub>thSA</sub> limits ΔT <sub>c</sub> to 10°C during overload
Nominal motor current	5.90A nominal full load current 8.85A 150% overload for 1 minute	
<b>Control Inputs</b>		
IN1...IN6, (PWM), IN7 (Brake), RESET	5V maximum, active low	CMOS, LSTTL compatible, open collector
STOP	5V maximum, active high	CMOS or LSTTL compatible
Pulse deadtime	0.2μs typical, set by IR2233	maximum set by controller
Minimum input pulse width	1μs	
<b>Protection</b>		
Output current trip level	40A, ±10%	T <sub>C</sub> = 25°C
Earth fault current trip level	50A, ±10%	T <sub>C</sub> = 25°C
Overtemperature trip level	100°C, ±5%	Case temperature
Overvoltage trip level	850V, ±10%	
Maximum DC link voltage	760V	user to ensure rating not exceeded >30sec
Short circuit shutdown time	2.5 μsec typical	output terminals shorted
<b>Feedback Signals</b>		
Current feedback (IFB)	0.025V/A <sub>BUS</sub> typical	T <sub>C</sub> = 25°C
DC bus voltage feedback (VFB)	0.010V/V <sub>BUS</sub> typical	T <sub>C</sub> = 25°C
Fault feedback (FAULT)	5V maximum, active low	CMOS or LSTTL compatible
<b>On Board Power Supply</b>		
VCC	15V, ±10%	
VDD	5V, ±5%	
ICC+ IDD	60mA	available to user
<b>Brake</b>		
Current	7.5A	
<b>Module</b>		
Isolation voltage	2500V rMS	pin to base plate isolation, 60Hz, 1 minute
Operating case temperature	-25°C to 125°C	
Mounting torque	1 Nm	M4 screw type
<b>System Environment</b>		
Ambient operating temp. range	0 to 40°C	90%RH max. (non-condensing)
Storage temperature range	-20 to 60°C	90%RH max. (non-condensing)

# IRPT1056

**POWIRTRAIN™**

## Integrated Power Stage for 1 hp Motor Drives

- 1 hp (0.75kW) power output  
Industrial rating at 150% overload for 1 minute
- 180 - 240VAC input
- Designed per UL safety guidelines
- Available as complete system or sub-system assemblies

### Power Module

- 3-phase rectifier bridge
- 3-phase ultrafast IGBT inverter
- Brake IGBT and diode
- Low inductance (current sense) shunts in positive and negative DC rail
- NTC temperature sensor
- Pin-to-baseplate isolation 2500V
- Easy-to-mount two-screw package
- Case temperature range -20°C to 95°C operational

### Driver-Plus Board

- DC bus capacitor filter with NTC inrush current limiter
- IR2132J monolithic 3-phase HVIC driver
- Driver stage for brake transistor
- On-board +15V and +5V power supply
- MOV surge suppression at input
- Control interface with DC bus voltage and current feedback
- Protection for short-circuit, earth/ground fault, overtemperature and overvoltage
- Terminal blocks for 3-phase input/output and brake connections

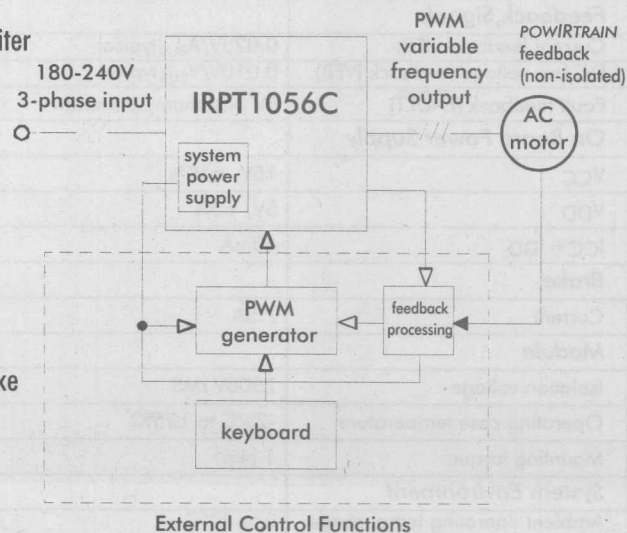
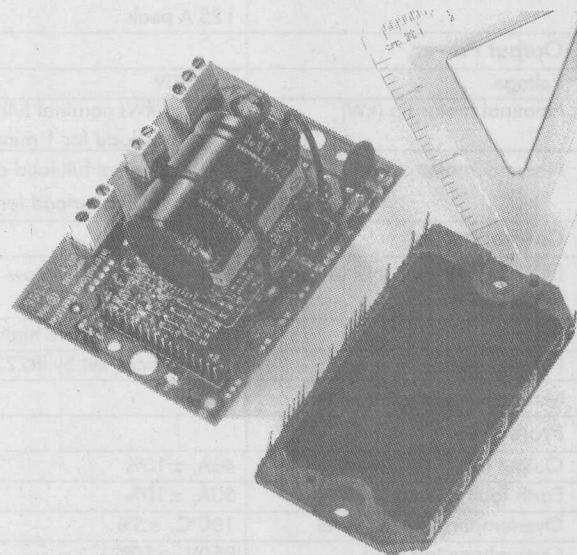
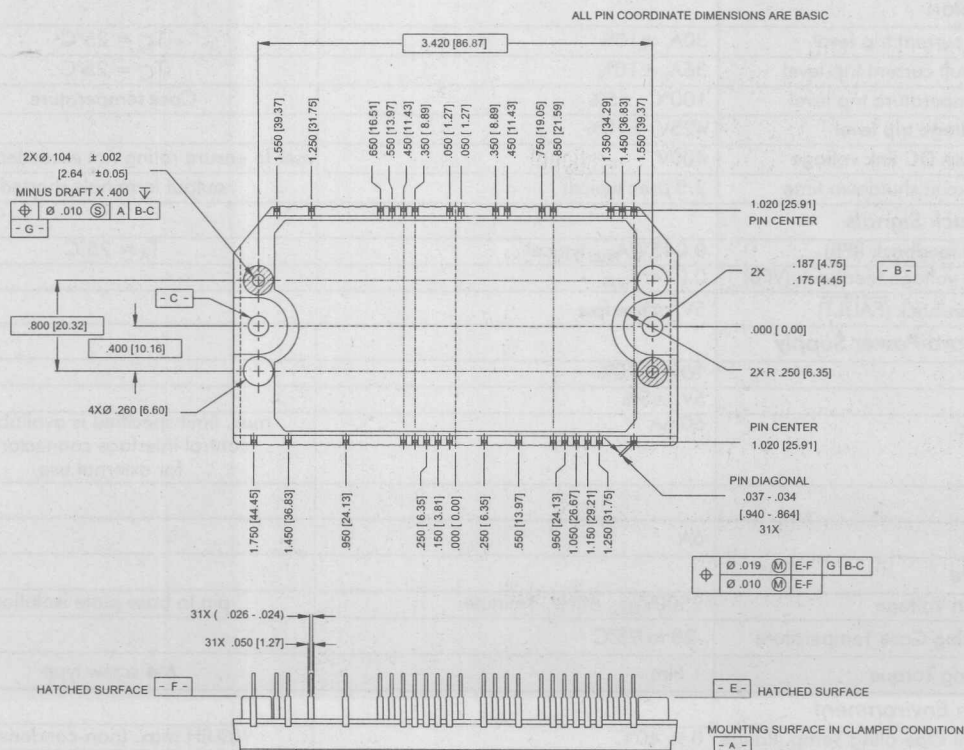
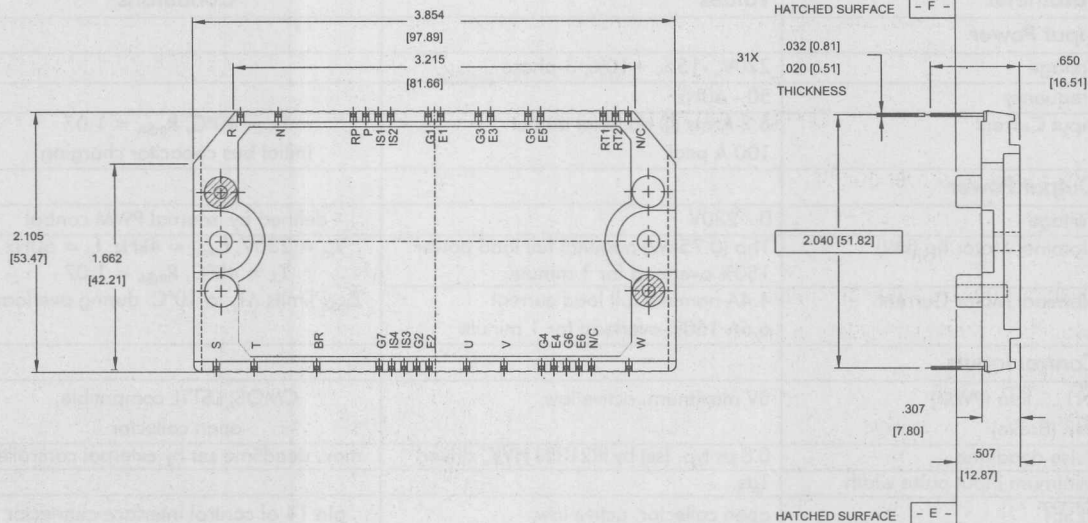


Figure 1. The IRPT1056C POWIRTRAIN within a motor control system  
Solutions C-10

# IRPT1056A Mechanical Specifications

NOTE: Dimensions are in inches [millimeters]

International  
IOR Rectifier





# Specifications: IRP1056

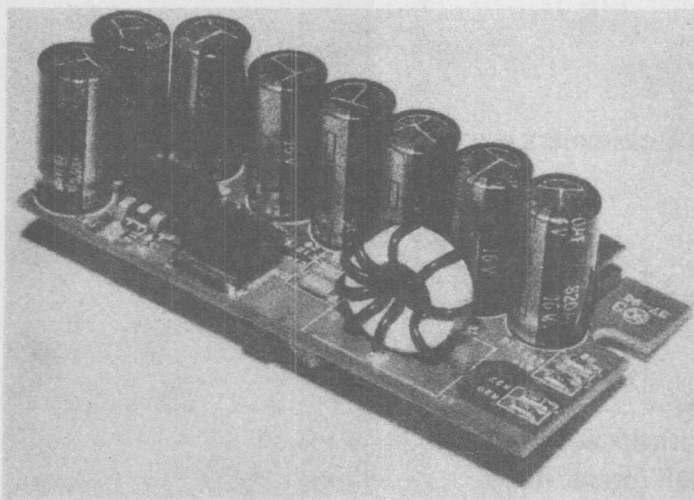
Parameter	Values	Conditions
<b>Input Power</b>		
Voltage	220V, -15%, +10%, 3-phase	
Frequency	50 - 60Hz	
Input Current	6.2 Arms @ nominal output 100 A peak	$T_A = 40^{\circ}\text{C}$ , $R_{thSA} = 1.07$ Initial bus capacitor charging
<b>Output Power</b>		
Voltage	0 - 230V	defined by external PWM control
Nominal Motor hp (kW)	1hp (0.75kW) nominal full load power 150% overload for 1 minute	$V_{in} = 230\text{V}$ , $f_{pwm} = 4\text{kHz}$ , $f_o = 60\text{Hz}$ $T_A = 40^{\circ}\text{C}$ , $R_{thSA} = 1.07$ $Z_{thSA}$ limits $\Delta T_c$ to $10^{\circ}\text{C}$ during overload
Nominal Motor Current	4.4A nominal full load current 6.6A 150% overload for 1 minute	
<b>Control Inputs</b>		
$\overline{\text{IN}}1, \dots, \overline{\text{IN}}6$ (PWM) $\overline{\text{IN}}7$ (Brake)	5V maximum, active low	CMOS, LSTTL compatible, open collector
Pulse deadtime	0.8 $\mu\text{s}$ typ. (set by IR2132J HVIC driver)	max. deadtime set by external controller
Minimum input pulse width	1 $\mu\text{s}$	
$\overline{\text{RESET}}$	open collector, active low	pin 14 of control interface connector pull down for $\geq 2\mu\text{sec}$ to release latch
<b>Protection</b>		
Output current trip level	30A, $\pm 10\%$	$T_C = 25^{\circ}\text{C}$
Earth fault current trip level	36A, $\pm 10\%$	$T_C = 25^{\circ}\text{C}$
Overtemperature trip level	100 $^{\circ}\text{C}$ , $\pm 5\%$	Case temperature
Overvoltage trip level	425V, $\pm 10\%$	
Maximum DC link voltage	400V	user to ensure rating not exceeded >30 sec
Short circuit shutdown time	2.5 $\mu\text{sec}$ typical	output terminals shorted
<b>Feedback Signals</b>		
Current feedback (IFB)	0.045V/ $A_{BUS}$ typical	$T_A = 25^{\circ}\text{C}$
DC bus voltage feedback (VFB)	0.014V/ $V_{BUS}$	
Fault feedback ( $\overline{\text{FAULT}}$ )	5V, active low	
<b>On Board Power Supply</b>		
$V_{CC}$	15V, $\pm 10\%$	
$V_{DD}$	5V, $\pm 5\%$	
$I_{CC} + I_{DD}$	60mA	max. limit specified is available on control interface connector J2 for external use
<b>Brake</b>		
Current	6A	
<b>Module</b>		
Isolation Voltage	2500V <sub>RMS</sub> , 60Hz, 1 minute	pin to base plate isolation
Operating Case Temperature	-20 to 95 $^{\circ}\text{C}$	
Mounting Torque	1 Nm	M4 screw type
<b>System Environment</b>		
Ambient Operating Temp. Range	0 to 40 $^{\circ}\text{C}$	90%RH max. (non-condensing)
Storage Temp. range	-20 to 60 $^{\circ}\text{C}$	90%RH max. (non-condensing)

## IRP6VRM1

# Turn key power supply specification

### Key Features

- Conforms to Intel 200Mhz P6 specification
- 12.4 ampere continuous output
- 2.1V-to-3.5V digitally selectable output
- 30A/uS transient load response capability
- Greater than 90% efficient
- Short circuit protected
- **Super FETKY** synchronous rectifier



The new IRP6VRM1 offers the power supply designer a complete turn-key solution for dc/dc convertors required to power next-generation microprocessors. A synchronous buck regulator topology operating at 200kHz is employed and achieves excellent efficiency with very fast load response and tight output voltage regulation.

The new Super FETKY is used in the synchronous recirculation circuitry to reduce board space and assembly cost while actually improving circuit efficiency through reduced stray inductance. Complete performance characterization along with detailed schematic, bill-of-materials, PCB layout and modelling are offered to reduce the customer's design time and effort.

### **Purpose**

This is a production ready design. It has been thoroughly tested for performance against the Intel P6 power specification, and evaluated for manufacturability by a high volume manufacturer.

This design will not be manufactured by International Rectifier. It's purpose is to simplify the design and qualification process for our customers.

### **Demo Boards**

Completed boards are available free to IR customers, and at a reasonable charge to others.

### **Design Modifications**

If your design has different requirements, contact your local representative for assistance.

### **Web Site**

This design may be downloaded in two formats at IR's web site (<http://www.irf.com>). One is PDF format for on screen viewing or printing, the other is in native format.

### **Floppy Disk**

The design is also available on floppy disk. As on our web site, the floppy version contains two formats, PDF and native format.

Part Number	Power (W)	Current (A)	Voltage (V)	Frequency (Hz)	Temperature (°C)	Mounting
100	100	1.0	100	50	100	100
200	200	2.0	200	100	200	200
300	300	3.0	300	150	300	300
400	400	4.0	400	200	400	400
500	500	5.0	500	250	500	500
600	600	6.0	600	300	600	600
700	700	7.0	700	350	700	700
800	800	8.0	800	400	800	800
900	900	9.0	900	450	900	900
1000	1000	10.0	1000	500	1000	1000



Q-70

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Part Number	$V_{RRM}$ (V)	$I_O$ (A)	$\theta_{TC}$ (°C)	$V_{FM}^{\oplus}$ $I_{FM}$ (V) (A)	$I_{FSM}$ 50 Hz 60 Hz (A) (A)	$R_{\theta JC}$ K/W	$I_{RM}$ (μA)	Notes	Fax-on-Demand	Outline
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## Single Phase

### Schottky

D-70



1BQ20	20	1	45	0.65	1	30	31	60	5	2	3	6	7	B1
1BQ40	40	1	45	0.65	1	30	31	60	5	2	3	6	7	

### Diode

D-71



DF005S	50	1	40	1	1	30	31	60	5	2	5	6	7	15	82788	B2
DF01S	100	1	40	1	1	30	31	60	5	2	5	6	7	15	82788	
DF02S	200	1	40	1	1	30	31	60	5	2	5	6	7	15	82788	
DF04S	400	1	40	1	1	30	31	60	5	2	5	6	7	15	82788	
DF06S	600	1	40	1	1	30	31	60	5	2	5	6	7	15	82788	
DF08S	800	1	40	1	1	30	31	60	5	2	5	6	7	15	82788	
DF10S	1000	1	40	1	1	30	31	60	5	2	5	6	7	15	82788	

### Diode

D-70



DF005M	50	1	40	1	1	30	31	60	5	2	6	7	15	82788	21
DF01M	100	1	40	1	1	30	31	60	5	2	6	7	15	82788	
DF02M	200	1	40	1	1	30	31	60	5	2	6	7	15	82788	
DF04M	400	1	40	1	1	30	31	60	5	2	6	7	15	82788	
DF06M	600	1	40	1	1	30	31	60	5	2	6	7	15	82788	
DF08M	800	1	40	1	1	30	31	60	5	2	6	7	15	82788	
DF10M	1000	1	40	1	1	30	31	60	5	2	6	7	15	82788	

### NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Irm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_O$  at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Irm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10 μs square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$	$I_O$	$\theta_{TC}$	$V_{FM} @$	$I_{FM}$	$I_{FSM}$	$R_{\theta JC}$	$I_{RM}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz 60 Hz	(A)	(A)			

## Single Phase

### Diode

D-71



Available in Europe only

1B005S	50	1	40	1	1	30	31	60	5	2	5	6	7	15	B2
1B01S	100	1	40	1	1	30	31	60	5	2	5	6	7	15	
1B02S	200	1	40	1	1	30	31	60	5	2	5	6	7	15	
1B04S	400	1	40	1	1	30	31	60	5	2	5	6	7	15	
1B06S	600	1	40	1	1	30	31	60	5	2	5	6	7	15	
1B08S	800	1	40	1	1	30	31	60	5	2	5	6	7	15	
1B10S	1000	1	40	1	1	30	31	60	5	2	5	6	7	15	

### Diode

D-70



Available in Europe only

1B005	50	1	40	1	1	30	31	60	5	2	6	7	15	B1
1B01	100	1	40	1	1	30	31	60	5	2	6	7	15	
1B02	200	1	40	1	1	30	31	60	5	2	6	7	15	
1B04	400	1	40	1	1	30	31	60	5	2	6	7	15	
1B06	600	1	40	1	1	30	31	60	5	2	6	7	15	
1B08	800	1	40	1	1	30	31	60	5	2	6	7	15	
1B10	1000	1	40	1	1	30	31	60	5	2	6	7	15	

### Diode

D-38



1KAB05E	50	1.5	45	1	1	50	52	10	2	4	6	15	82732	B3
1KAB10E	100	1.5	45	1	1	50	52	10	2	4	6	15	82732	

### NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_O$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and  $R_{th}$  measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

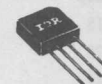
Part Number	$V_{RRM}$	$I_O$	$\theta_{TC}$	$V_{FM}^{\oplus}$		$I_{FSM}$		$R_{\theta JC}$	$I_{RM}$	Notes	Fax-on-	
	(V)	(A)	(°C)	$I_{FM}$	(A)	50 Hz	60 Hz	K/W	( $\mu$ A)		Demand	Outline

## Single Phase

1KAB20E	200	1.5	45	1	1	50	52		10	2 4 6 15	82732	B3
1KAB40E	400	1.5	45	1	1	50	52		10	2 4 6 15	82732	
1KAB60E	600	1.5	45	1	1	50	52		10	2 4 6 15	82732	
1KAB80E	800	1.5	45	1	1	50	52		10	2 4 6 15	82732	
1KAB100E	1000	1.5	45	1	1	50	52		10	2 4 6 15	82732	

## Diode

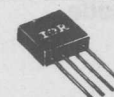
D-37



2KBB05R	50	2	45	1	3	50	52		10	2 3 4 6	82733	B5
2KBB05	50	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB10R	100	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB10	100	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB20	200	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB20R	200	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB40	400	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB40R	400	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB60	600	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB60R	600	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB80	800	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB80R	800	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB100	1000	2	45	1	3	50	52		10	2 3 4 6	82733	
2KBB100R	1000	2	45	1	3	50	52		10	2 3 4 6	82733	

## Diode

D-44



2KBP005	50	2	50	1	2	60	63		10	2 3 4 6	82753	B6
2KBP01	100	2	50	1	2	60	63		10	2 3 4 6	82753	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Irm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_O$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Irm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and  $R_{th}$  measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu$ s square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

# Bridges

International  
**IOR** Rectifier

Part Number	$V_{RRM}$ (V)	$I_O$ (A)	$\theta_{TC}$ (°C)	$V_{FM}^{\oplus}$		$I_{FSM}$		$R_{\theta JC}$ K/W	$I_{RM}$ ( $\mu$ A)	Notes	Fax-on-Demand	Outline
				$I_{FM}$ (A)		50 Hz (A)	60 Hz (A)					

## Single Phase

2KBP02	200	2	50	1	2	60	63		10	2 3 4 6	82753	B6
2KBP04	400	2	50	1	2	60	63		10	2 3 4 6	82753	
2KBP06	600	2	50	1	2	60	63		10	2 3 4 6	82753	
2KBP08	800	2	50	1	2	60	63		10	2 3 4 6	82753	
2KBP10	1000	2	50	1	2	60	63		10	2 3 4 6	82753	

## Diode

D-46



KBPC1005	50	3	50	1	1.5	50	55		10	2	82754	B7
KBPC101	100	3	50	1	1.5	50	55		10	2	82754	
KBPC102	200	3	50	1	1.5	50	55		10	2	82754	
KBPC104	400	3	50	1	1.5	50	55		10	2	82754	
KBPC106	600	3	50	1	1.5	50	55		10	2	82754	
KBPC108	800	3	50	1	1.5	50	55		10	2	82754	
KBPC110	1000	3	50	1	1.5	50	55		10	2	82754	

## Diode

D-72



KBPC6005	50	6	50	1	3	100	109		10	2 3	82754	B8
KBPC601	100	6	50	1	3	100	109		10	2 3	82754	
KBPC602	200	6	50	1	3	100	109		10	2 3	82754	
KBPC604	400	6	50	1	3	100	109		10	2 3	82754	
KBPC606	600	6	50	1	3	100	109		10	2 3	82754	
KBPC608	800	6	50	1	3	100	109		10	2 3	82754	
KBPC610	1000	6	50	1	3	100	109		10	2 3	82754	
KBPC8005	50	8	50	1	3	125	137		400	2 3	82789	
KBPC801	100	8	50	1	3	125	137		400	2 3	82789	

### NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_O$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and  $R_{th}$  measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu$ s square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-5



Part Number	$V_{RRM}$	$I_O$	$\theta_{TC}$	$V_{FM}^{\oplus}$		$I_{FSM}$		$R_{\theta JC}$	$I_{RM}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz (A)	60 Hz (A)	K/W	( $\mu A$ )			

## Single Phase

KBPC802	200	8	50	1	3	125	137		400	2 3	82789	B8
KBPC804	400	8	50	1	3	125	137		400	2 3	82789	
KBPC806	600	8	50	1	3	125	137		400	2 3	82789	
KBPC808	800	8	50	1	3	125	137		400	2 3	82789	
KBPC810	1000	8	50	1	3	125	137		400	2 3	82789	

### NOTES:

- Available on tape-and-reel
- For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 150^\circ C$
- For  $I_{RM}$ :  $T_J = 150^\circ C$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'LS' for 3mm or 'LS' for 5mm, e.g. 1KAB10EL3.
- $V_{FM}$  measured at  $T_J = T_J \text{ max.}$
- to at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- $V_{FM}$  measured at  $T_J = 25^\circ C$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For  $I_{RM}$ :  $T_J = 25^\circ C$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- $V_{FM}$  for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- $I_{F(AV)}$  and  $R_{th}$  measured to heat sink
- $I_{FSM}$  measured at 50%  $V_{RRM}$  reapplied
- 10  $\mu s$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$	$I_F(AV)$	$\theta T_C$	$V_{FM}^{\oplus}$	$I_{FM}$	$I_{FSM}$	$R_{\theta JC}(DC)$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz 60 Hz	°C/W			

## Single Phase

### Diode

D-34A



UL  
RECOGNIZED  
File # E2886

#### Part Number- Europe

100JB05L		50	10	65	1.3	16	125	130	3.5	2	8	9	10	80715	B11
100JB1L		100	10	65	1.3	16	125	130	3.5	2	8	9	10	80715	
100JB2L		200	10	65	1.3	16	125	130	3.5	2	8	9	10	80715	
100JB4L		400	10	65	1.3	16	125	130	3.5	2	8	9	10	80715	
100JB6L		600	10	65	1.3	16	125	130	3.5	2	8	9	10	80715	
100JB8L		800	10	65	1.3	16	125	130	3.5	2	8	9	10	80715	
100JB10L		1000	10	65	1.3	16	125	130	3.5	2	8	9	10	80715	
100JB12L		1200	10	65	1.3	16	125	130	3.5	2	8	9	10	80715	
100JB14L		1400	10	65	1.3	16	125	130	3.5	2	8	9	10	80715	
100JB16L		1600	10	65	1.3	16	125	130	3.5	2	8	9	10	80715	
250JB05L	26MB05A	50	25	65	1.1	40	335	350	1.7	2	8	9	10	80715	
250JB1L	26MB10A	100	25	65	1.1	40	335	350	1.7	2	8	9	10	80715	
250JB2L	26MB20A	200	25	65	1.1	40	335	350	1.7	2	8	9	10	80715	
250JB4L	26MB40A	400	25	65	1.1	40	335	350	1.7	2	8	9	10	80715	
250JB6L	26MB60A	600	25	65	1.1	40	335	350	1.7	2	8	9	10	80715	
250JB8L	26MB80A	800	25	65	1.1	40	335	350	1.7	2	8	9	10	80715	
250JB10L	26MB100A	1000	25	65	1.1	40	335	350	1.7	2	8	9	10	80715	
250JB12L	26MB120A	1200	25	65	1.1	40	335	350	1.7	2	8	9	10	80715	
250JB14L	26MB140A	1400	25	65	1.1	40	335	350	1.7	2	8	9	10	80715	
250JB16L	26MB160A	1600	25	65	1.1	40	335	350	1.7	2	8	9	10	80715	
35MB05A	36MB05A	50	35	60	1.2	55	400	420	1.2	2	8	9	10	80715	
35MB10A	36MB10A	100	35	60	1.2	55	400	420	1.2	2	8	9	10	80715	
35MB20A	36MB20A	200	35	60	1.2	55	400	420	1.2	2	8	9	10	80715	
35MB40A	36MB40A	400	35	60	1.2	55	400	420	1.2	2	8	9	10	80715	
35MB60A	36MB60A	600	35	60	1.2	55	400	420	1.2	2	8	9	10	80715	

#### NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-7

Part Number	$V_{RRM}$ $I_{F(AV)}$ @ $T_C$			$V_{FM}^{\oplus}$		$I_{FSM}$		$R_{\theta JC}$ (DC)	$\theta_{JC}$ (°C/W)	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz	60 Hz					

## Single Phase

35MB80A	36MB80A	800	35	60	1.2	55	400	420	1.2	2 8 9 10	80715	B11
35MB100A	36MB100A	1000	35	60	1.2	55	400	420	1.2	2 8 9 10	80715	
35MB120A	36MB120A	1200	35	60	1.2	55	400	420	1.2	2 8 9 10	80715	
35MB140A	36MB140A	1400	35	60	1.2	55	400	420	1.2	2 8 9 10	80715	
35MB160A	36MB160A	1600	35	60	1.2	55	400	420	1.2	2 8 9 10	80715	

## Diode

D-63



26MT5	50	25	70	1.26	40	300	314	1.42	2 8 10	80771	B12
26MT10	100	25	70	1.26	40	300	314	1.42	2 8 10	80771	
26MT20	200	25	70	1.26	40	300	314	1.42	2 8 10	80771	
26MT40	400	25	70	1.26	40	300	314	1.42	2 8 10	80771	
26MT60	600	25	70	1.26	40	300	314	1.42	2 8 10	80771	
26MT80	800	25	70	1.26	40	300	314	1.42	2 8 10	80771	
26MT100	1000	25	70	1.26	40	300	314	1.42	2 8 10	80771	
26MT120	1200	25	70	1.26	40	300	314	1.42	2 8 10	80771	
26MT140	1400	25	70	1.26	40	300	314	1.42	2 8 10	80771	
26MT160	1600	25	70	1.26	40	300	314	1.42	2 8 10	80771	
36MT5	50	35	60	1.19	40	400	420	1.16	2 8 10	80771	
36MT10	100	35	60	1.19	40	400	420	1.16	2 8 10	80771	
36MT20	200	35	60	1.19	40	400	420	1.16	2 8 10	80771	
36MT40	400	35	60	1.19	40	400	420	1.16	2 8 10	80771	
36MT60	600	35	60	1.19	40	400	420	1.16	2 8 10	80771	
36MT80	800	35	60	1.19	40	400	420	1.16	2 8 10	80771	
36MT100	1000	35	60	1.19	40	400	420	1.16	2 8 10	80771	
36MT120	1200	35	60	1.19	40	400	420	1.16	2 8 10	80771	
36MT140	1400	35	60	1.19	40	400	420	1.16	2 8 10	80771	
36MT160	1600	35	60	1.19	40	400	420	1.16	2 8 10	80771	

## NOTES:

- 1 Available on tape-and-reel
- 2 For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- 3 For Ifm:  $T_J = 150^\circ\text{C}$
- 4 Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- 5 VFM measured at  $T_J = T_J \text{ max.}$
- 6  $I_o$  at ambient temperature
- 7  $R_{th}$  is junction-to-ambient
- 8 Value given for  $R_{thJC}$  is per module
- 9 Vfm measured at  $T_J = 25^\circ\text{C}$
- 10 RMS isolation voltage=2700V - 50Hz
- 11 RMS isolation voltage=4000V - 50Hz
- 12 For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- 13 Additional packages available
- 14 Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- 15 For Ifm:  $T_J = 25^\circ\text{C}$
- 16 Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- 17 Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- 18 Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- 19 Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 20 1N3288 series also available.
- 21 VFM for JEDEC types is registered at max  $T_J$ .
- 22 Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- 23 DC operation, double side cooled
- 24  $I_F(AV)$  and  $R_{th}$  measured to heat sink
- 25 Ifsm measured at 50% VRRM reapplied
- 26 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- 27 RMS isolation voltage=3500V - 50Hz
- 28 Available with spacers and longer screws
- 29 RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$	$I_{F(AV)}$	$@T_C$	$V_{FM}^{\oplus}$	$I_{FM}$	$I_{FSM}$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz 60 Hz	(°C/W)			

## Three-Phase

## Diode

## INT-A-Pak (B13)



60MT80K	800	60	85	1.75	100	350	370	0.37	2 8 11	87109	B13
60MT100K	1000	60	85	1.75	100	350	370	0.37	2 8 11	87109	
60MT120K	1200	60	85	1.75	100	350	370	0.37	2 8 11	87109	
60MT140K	1400	60	85	1.75	100	350	370	0.37	2 8 11	87109	
60MT160K	1600	60	85	1.75	100	350	370	0.37	2 8 11	87109	
70MT80K	800	70	85	1.55	100	400	420	0.292	2 8 11	87109	
70MT100K	1000	70	85	1.55	100	400	420	0.292	2 8 11	87109	
70MT120K	1200	70	85	1.55	100	400	420	0.292	2 8 11	87109	
70MT140K	1400	70	85	1.55	100	400	420	0.292	2 8 11	87109	
70MT160K	1600	70	85	1.55	100	400	420	0.292	2 8 11	87109	
90MT80K	800	90	90	1.6	150	650	680	0.21	2 8 11	87110	
90MT100K	1000	90	90	1.6	150	650	680	0.21	2 8 11	87110	
90MT120K	1200	90	90	1.6	150	650	680	0.21	2 8 11	87110	
90MT140K	1400	90	90	1.6	150	650	680	0.21	2 8 11	87110	
90MT160K	1600	90	90	1.6	150	650	680	0.21	2 8 11	87110	
110MT80K	800	110	90	1.4	150	800	840	0.178	2 8 11	87110	
110MT100K	1000	110	90	1.4	150	800	840	0.178	2 8 11	87110	
110MT120K	1200	110	90	1.4	150	800	840	0.178	2 8 11	87110	
110MT140K	1400	110	90	1.4	150	800	840	0.178	2 8 11	87110	
110MT160K	1600	110	90	1.4	150	800	840	0.178	2 8 11	87110	
130MT80K	800	130	85	1.63	200	950	1000	0.155	2 8 11	87111	
130MT100K	1000	130	85	1.63	200	950	1000	0.155	2 8 11	87111	
130MT120K	1200	130	85	1.63	200	950	1000	0.155	2 8 11	87111	
130MT140K	1400	130	85	1.63	200	950	1000	0.155	2 8 11	87111	
130MT160K	1600	130	85	1.63	200	950	1000	0.155	2 8 11	87111	

## NOTES:

- Available on tape-and-reel
- For  $I_{FSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For  $I_{RM}$ :  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_o$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For  $I_{FSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For  $I_{RM}$ :  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- $I_F(AV)$  and  $R_{th}$  measured to heat sink
- $I_{FSM}$  measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT



Part Number	$V_{RRM}$			$I_{F(AV)}$		$\theta_{TC}$	$V_{FM}^{\oplus}$		$I_{FSM}$		$R_{\theta JC (DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)		(V)	(A)	50 Hz	60 Hz				

## Three-Phase

160MT80K	800	160	85	1.49	200	1200	1260	0.121	2	8	11	87111	B13
160MT100K	1000	160	85	1.49	200	1200	1260	0.121	2	8	11	87111	
160MT120K	1200	160	85	1.49	200	1200	1260	0.121	2	8	11	87111	
160MT140K	1400	160	85	1.49	200	1200	1260	0.121	2	8	11	87111	
160MT160K	1600	160	85	1.49	200	1200	1260	0.121	2	8	11	87111	

### NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

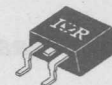
## Plastic Standard Recovery Diodes in D-Pak, D<sup>2</sup> Pak, TO-220 & TO-247 packages

### EW,ET & EP Series 8-80A, 800-1600V

	8A	10A	20A	20A	30A	40A	60A
							
<b>Voltage Grade</b>	D-Pak	TO-220AC	D <sup>2</sup> -Pak	TO-220AC	TO-247 (3-pin)	TO-247	TO-247 (2-pin)
800	8EWS08S	10ETS08	20ETS08S	20ETS08	30DPS08	40EPS08	60EPS08
1200	8EWS12S	10ETS12	20ETS12S	20ETS12	30DPS12	40EPS12	60EPS12
1600	8EWS16S	10ETS16	20ETS16S	20ETS16	30DPS16	40EPS16	60EPS16

Part Number	$V_{RRM}$	$I_F(AV)$	$\theta_{TC}$	$V_{FM}^{\oplus}$	$I_{FM}$	$I_{FSM}$		$R_{\theta JC}(DC)$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz	60 Hz	°C/W			

## Standard Recovery

D<sup>2</sup>Pak

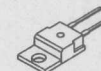
10ETS08S	800	10	105	1.1	10	170	175	2.5	I 12		J4
10ETS12S	1200	10	105	1.1	10	170	175	2.5	I 12		
10ETS16S	1600	10	105	1.1	10	170	175	2.5	I 12		
20ETS08S	800	20	105	1.1	20	250	260	1.3	I 12	82102	
20ETS12S	1200	20	105	1.1	20	250	260	1.3	I 12	82102	
20ETS16S	1600	20	105	1.1	20	250	260	1.3	I 12	82102	

## D-Pak



8EWS08S	800	8	95	1.1	8.0	170	175	3.0	I 12		H5
8EWS12S	1200	8	95	1.1	8.0	170	175	3.0	I 12		
8EWS16S	1600	8	95	1.1	8.0	170	175	3.0	I 12		

## TO-220AC (2-pin)



10ETS08	800	10	105	1.1	10	170	175	2.5	I 12		J10A
10ETS12	1200	10	105	1.1	10	170	175	2.5	I 12		
10ETS16	1600	10	105	1.1	10	170	175	2.5	I 12		
20ETS08	800	20	105	1.1	20	250	260	1.3	I 12	82101	
20ETS12	1200	20	105	1.1	20	250	260	1.3	I 12	82101	
20ETS16	1600	20	105	1.1	20	250	260	1.3	I 12	82101	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied, Tj=Tj max.=150°C
- For Ifm: Tj=150°C
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at Tj=Tj max.
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at Tj=25°C
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied, Tj=Tj max.
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm: Tj=25°C
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max Tj.
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- If(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10 μs square pulse, Tj=Tj max
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{TC}$	$V_{FM}^{\circ}$	$I_{FM}$	$I_{FSM}$	$R_{\theta JC (DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz 60 Hz	(A) (A) °C/W			

## Standard Recovery

TO-247AC (2-pin)



40EPS08	800	40	105	1.1	40	400	380	0.60	12	82104 J12A
40EPS12	1200	40	105	1.1	40	400	380	0.60	12	82104
40EPS16	1600	40	105	1.1	40	400	380	0.60	12	82104
60EPS08	800	60	105	1.1	60	700	735	0.45	12	
60EPS12	1200	60	105	1.1	60	700	735	0.45	12	
60EPS16	1600	60	105	1.1	60	700	735	0.45	12	

### NOTES:

- Available on tape-and-reel
- For  $I_{FSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For  $I_{FM}$ :  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_o$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For  $I_{FSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For  $I_{FM}$ :  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- $I_{F(AV)}$  and  $R_{th}$  measured to heat sink
- $I_{FSM}$  measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT



Part Number	$V_{RRM}$	$I_F(AV)$	$\theta_{TC}$	$V_{FM} @ \pi X$	$I_{FSM}$		$R_{\theta JC(DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	50 Hz	60 Hz				

## Standard Recovery

## SMB



SM4001TR	50	1	75	1.1	28	30	30	1	9	12	R1
SM4002TR	100	1	75	1.1	28	30	30	1	9	12	
SM4003TR	200	1	75	1.1	28	30	30	1	9	12	
SM4004TR	400	1	75	1.1	28	30	30	1	9	12	
SM4005TR	600	1	75	1.1	28	30	30	1	9	12	
SM4006TR	800	1	75	1.1	28	30	30	1	9	12	
SM4007TR	1000	1	75	1.1	28	30	30	1	9	12	

## B-47PP



8AF05NPP	50	50	150	1.45	600	628	0.6	9	12	16	20086	R5
8AF1NPP	100	50	150	1.45	600	628	0.6	9	12	16	20086	
8AF2NPP	200	50	150	1.45	600	628	0.6	9	12	16	20086	
8AF4NPP	400	50	150	1.45	600	628	0.6	9	12	16	20086	

## DO-203AA (DO-4)



6F10	100	6	158	1.1	134	141	2.5	9	12	17	18	20009	R6
6F20	200	6	158	1.1	134	141	2.5	9	12	17	18	20009	
6F40	400	6	158	1.1	134	141	2.5	9	12	17	18	20009	
6F60	600	6	158	1.1	134	141	2.5	9	12	17	18	20009	
6F80	800	6	158	1.1	134	141	2.5	9	12	17	18	20009	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $\theta_a$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- $I_F(AV)$  and  $R_{th}$  measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$	$I_{F(AV)}$	$@T_C$	$V_{FM} @ \pi X$	$I_{FSM}$		$R_{\theta JC(DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	50 Hz	60 Hz				

## Standard Recovery

6F100	1000	6	158	1.1	134	141	2.5	9 12 17 18	20009	R6
6F120	1200	6	158	1.1	134	141	2.5	9 12 17 18	20009	
1N1199A	50	12	150	1.35	230	240	2	9 12 17	20084	
12F10	100	12	144	1.26	225	235	2	9 12 17 18	20009	
1N1200A	100	12	150	1.35	230	240	2	9 12 17	20084	
1N1201A	150	12	150	1.35	230	240	2	9 12 17	20084	
1N1202A	200	12	150	1.35	230	240	2	9 12 17	20084	
12F20	200	12	144	1.26	225	235	2	9 12 17 18	20009	
1N1203A	300	12	150	1.35	230	240	2	9 12 17	20084	
12F40	400	12	144	1.26	225	235	2	9 12 17 18	20009	
1N1204A	400	12	150	1.35	230	240	2	9 12 17	20084	
1N1205A	500	12	150	1.35	230	240	2	9 12 17	20084	
1N1206A	600	12	150	1.35	230	240	2	9 12 17	20084	
12F60	600	12	144	1.26	225	235	2	9 12 17 18	20009	
1N3670A	700	12	150	1.35	230	240	2	9 12 17	20084	
12F80	800	12	144	1.26	225	235	2	9 12 17 18	20009	
1N3671A	800	12	150	1.35	230	240	2	9 12 17	20084	
1N3672A	900	12	150	1.35	230	240	2	9 12 17	20084	
12F100	1000	12	144	1.26	225	235	2	9 12 17 18	20009	
1N3673A	1000	12	150	1.35	230	240	2	9 12 17	20084	
12F120	1200	12	144	1.26	225	235	2	9 12 17 18	20009	
16F10	100	16	140	1.23	295	310	1.6	9 12 17 18	20009	
16F20	200	16	140	1.23	295	310	1.6	9 12 17 18	20009	
16F40	400	16	140	1.23	295	310	1.6	9 12 17 18	20009	
16F60	600	16	140	1.23	295	310	1.6	9 12 17 18	20009	
16F80	800	16	140	1.23	295	310	1.6	9 12 17 18	20009	
16F100	1000	16	140	1.23	295	310	1.6	9 12 17 18	20009	
16F120	1200	16	140	1.23	295	310	1.6	9 12 17 18	20009	
25F10	100	25	120	0.9	300	314	1.5	9 12 17 18	80018	
25F20	200	25	120	0.9	300	314	1.5	9 12 17 18	80018	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max}$ .
- $I_o$  at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max}$ .
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

Part Number	$V_{RRM}$ $I_{F(AV)}$ @ $T_C$			$V_{FM} @ \pi X$		$I_{FSM}$		$R_{\theta JC(DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz	60 Hz	°C/W			

## Standard Recovery

25F40	400	25	120	0.9		300	314	1.5	9 12 17 18	80018	R6
25F60	600	25	120	0.9		300	314	1.5	9 12 17 18	80018	
25F80	800	25	120	0.9		300	314	1.5	9 12 17 18	80018	
25F100	1000	25	120	0.9		300	314	1.5	9 12 17 18	80018	
25F120	1200	25	120	0.9		300	314	1.5	9 12 17 18	80018	

## DO-203AB (DO-5)



1N3208	50	15	150	1.5		239	250	0.65	12 17	20010	R7
1N3209	100	15	150	1.5		239	250	0.65	12 17	20010	
1N3210	200	15	150	1.5		239	250	0.65	12 17	20010	
1N3211	300	15	150	1.5		239	250	0.65	12 17	20010	
1N3212	400	15	150	1.5		239	250	0.65	12 17	20010	
1N3213	500	15	150	1.5		239	250	0.65	12 17	20010	
1N3214	600	15	150	1.5		239	250	0.65	12 17	20010	
1N1183	50	35	140	1.7		480	500	1	9 12 17	20087	
1N1184	100	35	140	1.7		480	500	1	9 12 17	20087	
1N1185	150	35	140	1.7		480	500	1	9 12 17	20087	
1N1186	200	35	140	1.7		480	500	1	9 12 17	20087	
1N1187	300	35	140	1.7		480	500	1	9 12 17	20087	
1N1188	400	35	140	1.7		480	500	1	9 12 17	20087	
1N1189	500	35	140	1.7		480	500	1	9 12 17	20087	
1N1190	600	35	140	1.7		480	500	1	9 12 17	20087	
1N3765	700	35	140	1.8		380	400	1	9 12 17	20087	
1N3766	800	35	140	1.8		380	400	1	9 12 17	20087	
1N3767	900	35	140	1.8		380	400	1	9 12 17	20087	
1N3768	1000	35	140	1.8		380	400	1	9 12 17	20087	
1N1183A	50	40	150	1.3		765	800	1.1	9 12 17	20087	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_o$  at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta T_C$	$V_{FM} @ \pi X$	$I_{FSM}$		$R_{\theta JC(DC)}$	Notes	Fax-on-	Outline
	(V)	(A)	(°C)	$I_{F(AV)}$	50 Hz	60 Hz	°C/W		Demand	
Standard Recovery										
40HF10	100	40	140	1.3	480	500	1	9 12 17 18	20014	R7
1N1184A	100	40	150	1.3	765	800	1.1	9 12 17	20087	
1N1185A	150	40	150	1.3	765	800	1.1	9 12 17	20087	
40HF20	200	40	140	1.3	480	500	1	9 12 17 18	20014	
1N1186A	200	40	150	1.3	765	800	1.1	9 12 17	20087	
1N1187A	300	40	150	1.3	765	800	1.1	9 12 17	20087	
40HF40	400	40	140	1.3	480	500	1	9 12 17 18	20014	
1N1188A	400	40	150	1.3	765	800	1.1	9 12 17	20087	
1N1189A	500	40	150	1.3	765	800	1.1	9 12 17	20087	
40HF60	600	40	140	1.3	480	500	1	9 12 17 18	20014	
1N1190A	600	40	150	1.3	765	800	1.1	9 12 17	20087	
40HF80	800	40	140	1.3	480	500	1	9 12 17 18	20014	
40HF100	1000	40	140	1.3	480	500	1	9 12 17 18	20014	
40HF120	1200	40	140	1.3	480	500	1	9 12 17 18	20014	
40HF140	1400	40	110	1.3	480	500	1	9 12 17 18	20014	
40HF160	1600	40	110	1.3	480	500	1	9 12 17 18	20014	
1N2128A	50	60	140	1.3	860	900	0.65	9 12 17	20087	
1N2129A	100	60	140	1.3	860	900	0.65	9 12 17	20087	
1N2130A	150	60	140	1.3	860	900	0.65	9 12 17	20087	
1N2131A	200	60	140	1.3	860	900	0.65	9 12 17	20087	
1N2133A	300	60	140	1.3	860	900	0.65	9 12 17	20087	
1N2135A	400	60	140	1.3	860	900	0.65	9 12 17	20087	
1N2137A	500	60	140	1.3	860	900	0.65	9 12 17	20087	
1N2138A	600	60	140	1.3	860	900	0.65	9 12 17	20087	
70HF10	100	70	140	1.35	1000	1050	0.45	9 12 17 18	20014	
70HF20	200	70	140	1.35	1000	1050	0.45	9 12 17 18	20014	
70HF40	400	70	140	1.35	1000	1050	0.45	9 12 17 18	20014	
70HF60	600	70	140	1.35	1000	1050	0.45	9 12 17 18	20014	
70HF80	800	70	140	1.35	1000	1050	0.45	9 12 17 18	20014	
70HF100	1000	70	140	1.35	1000	1050	0.45	9 12 17 18	20014	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- If(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT



Part Number	$V_{RRM}$ $I_{F(AV)}$ $\theta_{TC}$			$V_{FM} @ \pi X$		$I_{FSM}$		$R_{\theta JC(DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz	60 Hz	(°C/W)			

## Standard Recovery

70HF120	1200	70	140	1.35		1000	1050	0.45	9 12 17 18	20014	R7
70HF140	1400	70	110	1.35		1000	1050	0.45	9 12 17 18	20014	
70HF160	1600	70	110	1.35		1000	1050	0.45	9 12 17 18	20014	
88HF10	100	85	140	1.2		1450	1500	0.35	9 12 17	20014	R8
85HF10	100	85	140	1.2		1450	1500	0.35	9 12 17 18	20014	R7
88HF20	200	85	140	1.2		1450	1500	0.35	9 12 17	20014	R8
85HF20	200	85	140	1.2		1450	1500	0.35	9 12 17 18	20014	R7
85HF40	400	85	140	1.2		1450	1500	0.35	9 12 17 18	20014	
88HF40	400	85	140	1.2		1450	1500	0.35	9 12 17	20014	R8
85HF60	600	85	140	1.2		1450	1500	0.35	9 12 17 18	20014	R7
88HF60	600	85	140	1.2		1450	1500	0.35	9 12 17	20014	R8
88HF80	800	85	140	1.2		1450	1500	0.35	9 12 17	20014	
85HF80	800	85	140	1.2		1450	1500	0.35	9 12 17 18	20014	R7
85HF100	1000	85	140	1.2		1450	1500	0.35	9 12 17 18	20014	
88HF100	1000	85	140	1.2		1450	1500	0.35	9 12 17	20014	R8
88HF120	1200	85	140	1.2		1450	1500	0.35	9 12 17	20014	
85HF120	1200	85	140	1.2		1450	1500	0.35	9 12 17 18	20014	R7
85HF140	1400	85	110	1.2		1450	1500	0.35	9 12 17 18	20014	
85HF160	1600	85	110	1.2		1450	1500	0.35	9 12 17 18	20014	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Irm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Irm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

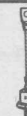
SWITCH

OUTPUT

Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{TC}$	$V_{FM}^{\oplus}$	$I_{FSM}$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	50 Hz 60 Hz	(A) (A) °C/W			

## Standard Recovery

DO-205AA (DO-8)



150K5A	50	150	150	1.33	470	3000	3140	0.25	9 12 17 18 19	20088	R9
150K10A	100	150	150	1.33	470	3000	3140	0.25	9 12 17 18 19	20088	
150K20A	200	150	150	1.33	470	3000	3140	0.25	9 12 17 18 19	20088	
150K30A	300	150	150	1.33	470	3000	3140	0.25	9 12 17 18 19	20088	
150K40A	400	150	150	1.33	470	3000	3140	0.25	9 12 17 18 19	20088	
150K60A	600	150	150	1.33	470	3000	3140	0.25	9 12 17 18 19	20088	
150K80A	800	150	150	1.33	470	3000	3140	0.25	9 12 17 18 19	20088	
150K100A	1000	150	150	1.33	470	3000	3140	0.25	9 12 17 18 19	20088	
1N3288A	100	100	130	1.5	314	2200	2300	0.4	12 17 20 21	20016	
1N3289A	200	100	130	1.5	314	2200	2300	0.4	12 17 20 21	20016	
1N3290A	300	100	130	1.5	314	2200	2300	0.4	12 17 20 21	20016	
1N3291A	400	100	130	1.5	314	2200	2300	0.4	12 17 20 21	20016	
1N3292B	500	100	130	1.5	314	2200	2300	0.4	12 17 20 21	20016	
1N3293A	600	100	130	1.5	314	2200	2300	0.4	12 17 20 21	20016	
1N3294A	800	100	130	1.5	314	2200	2300	0.4	12 17 20 21	20016	
1N3295A	1000	100	130	1.5	314	2200	2300	0.4	12 17 20 21	20016	

B-42



150KS5	50	150	150	1.33	470	3000	3140	0.25	9 12 17	20088	R10
150KS10	100	150	150	1.33	470	3000	3140	0.25	9 12 17	20088	
150KS20	200	150	150	1.33	470	3000	3140	0.25	9 12 17	20088	
150KS40	400	150	150	1.33	470	3000	3140	0.25	9 12 17	20088	
150KS60	600	150	150	1.33	470	3000	3140	0.25	9 12 17	20088	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

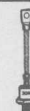
OUTPUT

Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{TC}$	$V_{FM}^{\circ}$	$I_{FM}$	$I_{FSM}$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz 60 Hz	(A) (A)			

## Standard Recovery

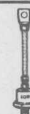
150KS80	800	150	150	1.33	470	3000	3140	0.25	9 12 17	20088	R10
150KS100	1000	150	150	1.33	470	3000	3140	0.25	9 12 17	20088	

## DO-205AC (DO-30)



130HF40PV	400	130	125	1.5	500	1680	1760	0.3	9 12 17	82019	R16
130HF80PV	800	130	125	1.5	500	1680	1760	0.3	9 12 17	82019	
130HF120PV	1200	130	125	1.5	500	1680	1760	0.3	9 12 17	82019	

## DO-205AA (DO-8)



150L5A	50	150	150	1.33	470	3000	3140	0.25	9 12 18 19	20088	R17
150L10A	100	150	150	1.33	470	3000	3140	0.25	9 12 18 19	20088	
150L20A	200	150	150	1.33	470	3000	3140	0.25	9 12 18 19	20088	
150L40A	400	150	150	1.33	470	3000	3140	0.25	9 12 18 19	20088	
150L60A	600	150	150	1.33	470	3000	3140	0.25	9 12 18 19	20088	
150L80A	800	150	150	1.33	470	3000	3140	0.25	9 12 18 19	20088	
150L100A	1000	150	150	1.33	470	3000	3140	0.25	9 12 18 19	20088	
1N3111	50	150	150	1.2	470	2850	3000	0.25	5 12	20089	
1N3085	100	150	150	1.2	470	2850	3000	0.25	5 12	20089	
1N3086	200	150	150	1.2	470	2850	3000	0.25	5 12	20089	
1N3087	300	150	150	1.2	470	2850	3000	0.25	5 12	20089	
1N3088	400	150	150	1.2	470	2850	3000	0.25	5 12	20089	
1N3089	500	150	150	1.2	470	2850	3000	0.25	5 12	20089	
1N3090	600	150	150	1.2	470	2850	3000	0.25	5 12	20089	
1N3091	800	150	150	1.2	470	2850	3000	0.25	5 12	20089	
1N3092	1000	150	150	1.2	470	2850	3000	0.25	5 12	20089	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_o$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- If(AV) and  $R_{th}$  measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

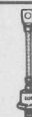
OUTPUT

Part Number	$V_{RRM}$	$I_F(AV)$	$\theta_{TC}$	$V_{FM}@$	$I_{FSM}$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	$I_{FM}$	50 Hz 60 Hz	°C/W			

## Standard Recovery

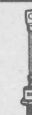
45L10	100	150	150	1.33	470	3000	3140	0.25	9 12 18	20088 R17
45L20	200	150	150	1.33	470	3000	3140	0.25	9 12 18	20088
45L40	400	150	150	1.33	470	3000	3140	0.25	9 12 18	20088
45L60	600	150	150	1.33	470	3000	3140	0.25	9 12 18	20088
45L80	800	150	150	1.33	470	3000	3140	0.25	9 12 18	20088
45L100	1000	150	150	1.33	470	3000	3140	0.25	9 12 18	20088

## DO-205AA (DO-8)



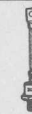
45L120D	1200	150	150	1.33	470	3000	3140	0.25	2 4 6	20088 R18
45L160D	1600	150	150	1.33	470	3000	3140	0.25	2 4 6	20088

## DO-205AC (DO-30)



SD150N20PC	2000	150	125	1.5	470	3000	3170	0.23	5 12 18 19	82077 R12
SD150N25PC	2500	150	125	1.5	470	3000	3170	0.23	5 12 18 19	82077

## DO-205AC (DO-30)



200HF40PV	400	200	125	1.45	628	3700	3870	0.17	5 12 17 18	82020 R16
200HF80PV	800	200	125	1.45	628	3700	3870	0.17	5 12 17 18	82020
200HF120PV	1200	200	125	1.45	628	3700	3870	0.17	5 12 17 18	82020

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

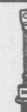
OUTPUT



Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{TC}$	$V_{FM}^{\oplus}$	$I_{FM}$	$I_{FSM}$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz 60 Hz	(A) (A)			

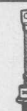
## Standard Recovery

## DO-205AC (DO-30)



SD150N04PV	400	150	125	1.5	470	3000	3170	0.23	5 12 18 19	82077 R11
SD150N08PV	800	150	125	1.5	470	3000	3170	0.23	5 12 18 19	82077
SD150N12PV	1200	150	125	1.5	470	3000	3170	0.23	5 12 18 19	82077
SD150N16PV	1600	150	125	1.5	470	3000	3170	0.23	5 12 18 19	82077
SD200N04PV	400	200	110	1.4	630	3950	4140	0.23	5 12 18 19	82080
SD200N08PV	800	200	110	1.4	630	3950	4140	0.23	5 12 18 19	82080
SD200N12PV	1200	200	110	1.4	630	3950	4140	0.23	5 12 18 19	82080
SD200N16PV	1600	200	110	1.4	630	3950	4140	0.23	5 12 18 19	82080

## DO-205AC (DO-30)



SD200N20PC	2000	200	110	1.4	630	3950	4140	0.23	5 12 18 19	82080 R12
SD200N24PC	2400	200	110	1.4	630	3950	4140	0.23	5 12 18 19	82080

## DO-205AB (DO-9)



1N2054	50	250	135	1.25	785	4300	4500	0.18	5 12 17	20018 R19
1N2055	100	250	135	1.25	785	4300	4500	0.18	5 12 17	20018
1N2057	200	250	135	1.25	785	4300	4500	0.18	5 12 17	20018
1N2059	300	250	135	1.25	785	4300	4500	0.18	5 12 17	20018
1N2061	400	250	135	1.25	785	4300	4500	0.18	5 12 17	20018
1N2064	600	250	135	1.25	785	4300	4500	0.18	5 12 17	20018
1N2066	800	250	135	1.25	785	4300	4500	0.18	5 12 17	20018

## NOTES:

- Available on tape-and-reel
- For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For  $I_{RM}$ :  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- $V_{FM}$  measured at  $T_J = T_J \text{ max.}$
- $I_o$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- $V_{FM}$  measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For  $I_{RM}$ :  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- $V_{FM}$  for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- $I_{F(AV)}$  and  $R_{th}$  measured to heat sink
- $I_{FSM}$  measured at 50%  $V_{RRM}$  reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

Part Number	$V_{RRM}$	$I_F(AV)$	$\theta_{TC}$	$V_{FM}$	$I_{FSM}$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	50 Hz 60 Hz	(A) (A)			

## Standard Recovery

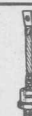
1N2067	900	250	135	1.25	785	4300	4500	0.18	5 12 17	20018 R19
1N2068	1000	250	135	1.25	785	4300	4500	0.18	5 12 17	20018
1N3735	100	250	130	1.3	785	4300	4500	0.18	5 12 17	20018
1N3736	200	250	130	1.3	785	4300	4500	0.18	5 12 17	20018
1N3737	300	250	130	1.3	785	4300	4500	0.18	5 12 17	20018
1N3738	400	250	130	1.3	785	4300	4500	0.18	5 12 17	20018
1N3739	500	250	130	1.3	785	4300	4500	0.18	5 12 17	20018
1N3740	600	250	130	1.3	785	4300	4500	0.18	5 12 17	20018
1N3741	800	250	130	1.3	785	4300	4500	0.18	5 12 17	20018
1N3742	1000	250	130	1.3	785	4300	4500	0.18	5 12 17	20018
1N3743	1200	250	130	1.3	785	4300	4500	0.18	5 12 17	20018

## DO-205AB (DO-9)



70U120D	1200	250	145	1.3	785	5500	5750	0.18	9 12 17 18	82031 R20
70U160D	1600	250	145	1.3	785	5500	5750	0.18	9 12 17 18	82031

## DO-205AB (DO-9)



1N4044	50	275	120	1.35	865	4800	5000	0.18	5 12 17	20091 R19
1N4045	100	275	120	1.35	865	4800	5000	0.18	5 12 17	20091
1N4046	150	275	120	1.35	865	4800	5000	0.18	5 12 17	20091
1N4047	200	275	120	1.35	865	4800	5000	0.18	5 12 17	20091
1N4048	250	275	120	1.35	865	4800	5000	0.18	5 12 17	20091
1N4049	300	275	120	1.35	865	4800	5000	0.18	5 12 17	20091
1N4050	400	275	120	1.35	865	4800	5000	0.18	5 12 17	20091
1N4051	500	275	120	1.35	865	4800	5000	0.18	5 12 17	20091

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$			$V_{FM}^{\oplus}$		$I_{FSM}$		$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz	60 Hz				

## Standard Recovery

1N4052	600	275	120	1.35	865	4800	5000	0.18	5 12 17	20091	R19
1N4053	700	275	120	1.35	865	4800	5000	0.18	5 12 17	20091	
1N4054	800	275	120	1.35	865	4800	5000	0.18	5 12 17	20091	
1N4055	900	275	120	1.35	865	4800	5000	0.18	5 12 17	20091	
1N4056	1000	275	120	1.35	865	4800	5000	0.18	5 12 17	20091	

## DO-205AB (DO-9)



300HF40P	400	300	125	1.38	942	3800	4000	0.12	9 12 17 18	82021	R21
300HF80P	800	300	125	1.38	942	3800	4000	0.12	9 12 17 18	82021	
300HF120P	1200	300	125	1.38	942	3800	4000	0.12	9 12 17 18	82021	

## DO-205AB (DO-9)



300U10A	100	300	130	1.4	942	5500	5750	0.18	9 12 17 18	82031	R19
300U20A	200	300	130	1.4	942	5500	5750	0.18	9 12 17 18	82031	
300U40A	400	300	130	1.4	942	5500	5750	0.18	9 12 17 18	82031	
300U60A	600	300	130	1.4	942	5500	5750	0.18	9 12 17 18	82031	
300U80A	800	300	130	1.4	942	5500	5750	0.18	9 12 17 18	82031	
300U100A	1000	300	130	1.4	942	5500	5750	0.18	9 12 17 18	82031	
300U120AD	1200	300	130	1.4	942	5500	5750	0.18	9 12 17 18	82031	
300U160AD	1600	300	130	1.4	942	5500	5750	0.18	9 12 17 18	82031	
70U10	100	250	145	1.3	785	5500	5750	0.18	9 12 17 18	82031	
70U20	200	250	145	1.3	785	5500	5750	0.18	9 12 17 18	82031	
70U40	400	250	145	1.3	785	5500	5750	0.18	9 12 17 18	82031	
70U60	600	250	145	1.3	785	5500	5750	0.18	9 12 17 18	82031	
70U80	800	250	145	1.3	785	5500	5750	0.18	9 12 17 18	82031	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- to at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{TC}$	$V_{FM}$	$I_{FM}$	$I_{FSM}$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz (A)	60 Hz (A)			

## Standard Recovery

70U100	1000	250	145	1.3	785	5500	5750	0.18	9	12	17	18	82031	R19
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## DO-205AB (DO-9)



301U80	800	330	120	1.22	942	6940	7270	0.15	5	12	17	22	82032	R22
301U120	1200	330	120	1.22	942	6940	7270	0.15	5	12	17	22	82032	
301U160	1600	330	120	1.22	942	6940	7270	0.15	5	12	17	22	82032	
301U200	2000	330	120	1.22	942	6940	7270	0.15	5	12	17	22	82032	
301U250	2500	300	120	1.46	942	5090	5330	0.15	5	12	17	22	82032	

## DO-205AB (DO-9)



SD300N20PC	2000	380	100	1.83	1180	5090	5330	0.11	5	12	16	18	82081	R23
SD300N25PC	2500	380	70	1.83	1180	5090	5330	0.11	5	12	16	18	82081	
SD300N28PC	2800	380	70	1.83	1180	5090	5330	0.11	5	12	16	18	82081	
SD300N32PC	3200	380	70	1.83	1180	5090	5330	0.11	5	12	16	18	82081	

## DO-205AB (DO-9)



SD300N04PV	400	380	100	1.83	1180	5090	5330	0.11	5	12	16	18	82081	R24
SD300N08PV	800	380	100	1.83	1180	5090	5330	0.11	5	12	16	18	82081	
SD300N12PV	1200	380	100	1.83	1180	5090	5330	0.11	5	12	16	18	82081	
SD300N16PV	1600	380	100	1.83	1180	5090	5330	0.11	5	12	16	18	82081	
SD400N20PC	2000	400	120	1.62	1500	6940	7270	0.11	5	12	16	18	82082	R23
SD400N24PC	2400	400	120	1.62	1500	6940	7270	0.11	5	12	16	18	82082	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT



Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{TC}$	$V_{FM}^{\oplus}$	$I_{FM}$	$I_{FSM}$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz 60 Hz	(A) °C/W			

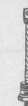
## Standard Recovery

## DO-205AB (DO-9)



SD400N04PV	400	400	120	1.62	1500	6940	7270	0.11	5 12 16 18	82082	R24
SD400N08PV	800	400	120	1.62	1500	6940	7270	0.11	5 12 16 18	82082	
SD400N12PV	1200	400	120	1.62	1500	6940	7270	0.11	5 12 16 18	82082	
SD400N16PV	1600	400	120	1.62	1500	6940	7270	0.11	5 12 16 18	82082	

## B-8



SD500N30PC	3000	475	55	1.66	1000	6310	6600	0.1	5 12 16 18	82095	R25
SD500N36PC	3600	475	55	1.66	1000	6310	6600	0.1	5 12 16 18	82095	
SD500N40PC	4000	475	55	1.66	1000	6310	6600	0.1	5 12 16 18	82095	
SD500N45PC	4500	475	55	1.66	1000	6310	6600	0.1	5 12 16 18	82095	
SD600N04PC	400	600	92	1.31	1500	10900	11450	0.1	5 12 16 18	82070	
SD600N08PC	800	600	92	1.31	1500	10900	11450	0.1	5 12 16 18	82070	
SD600N12PC	1200	600	92	1.31	1500	10900	11450	0.1	5 12 16 18	82070	
SD600N16PC	1600	600	92	1.31	1500	10900	11450	0.1	5 12 16 18	82070	
SD600N20PC	2000	600	92	1.31	1500	10900	11450	0.1	5 12 16 18	82070	
SD600N25PC	2500	600	54	1.44	1500	8830	9250	0.1	5 12 16 18	82070	
SD600N28PC	2800	600	54	1.44	1500	8830	9250	0.1	5 12 16 18	82070	
SD600N32PC	3200	600	54	1.44	1500	8830	9250	0.1	5 12 16 18	82070	

## NOTES:

- 1 Available on tape-and-reel
- 2 For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- 3 For Irm:  $T_J = 150^\circ\text{C}$
- 4 Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- 5 VFM measured at  $T_J = T_J \text{ max.}$
- 6  $I_o$  at ambient temperature
- 7 Rth is junction-to-ambient
- 8 Value given for RthJC is per module
- 9 Vfm measured at  $T_J = 25^\circ\text{C}$
- 10 RMS isolation voltage=2700V - 50Hz
- 11 RMS isolation voltage=4000V - 50Hz
- 12 For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- 13 Additional packages available
- 14 Available leaded. To order, add 1 (or 2 for leaded and 'sleeved') to second digit of part number, e.g. 41HF10 or 42HF10
- 15 For Irm:  $T_J = 25^\circ\text{C}$
- 16 Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- 17 Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- 18 Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- 19 Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 20 1N3288 series also available.
- 21 VFM for JEDEC types is registered at max  $T_J$ .
- 22 Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- 23 DC operation, double side cooled
- 24 IF(AV) and Rth measured to heat sink
- 25 Ifsm measured at 50% VRRM reapplied
- 26 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- 27 RMS isolation voltage=3500V - 50Hz
- 28 Available with spacers and longer screws
- 29 RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$ (V)	$I_{F(AV)}$ (A)	$\theta_{THS}$ (°C)	$V_{FM}^{\oplus}$ $I_{FM}$ (V) (A)	$I_{FSM}$ 50 Hz 60 Hz (A) (A)	$R_{\theta J-HS}$ °C/W	Notes	Fax-on-Demand	Outline
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## Standard Recovery

DO-200AA (A-Puk)



SD300C25C	2500	540	55	2.08	1500	5090	5330	0.073	5	12	23	82083	R26
SD300C28C	2800	540	55	2.08	1500	5090	5330	0.073	5	12	23	82083	
SD300C32C	3200	540	55	2.08	1500	5090	5330	0.073	5	12	23	82083	
SD300C04C	400	650	55	2.08	1500	5090	5330	0.073	5	12	23	82083	
SD300C08C	800	650	55	2.08	1500	5090	5330	0.073	5	12	23	82083	
SD300C12C	1200	650	55	2.08	1500	5090	5330	0.073	5	12	23	82083	
SD300C16C	1600	650	55	2.08	1500	5090	5330	0.073	5	12	23	82083	
SD300C20C	2000	650	55	2.08	1500	5090	5330	0.073	5	12	23	82083	
SD400C04C	400	800	55	1.86	1930	6940	7265	0.073	5	12	23	82084	
SD400C08C	800	800	55	1.86	1930	6940	7265	0.073	5	12	23	82084	
SD400C12C	1200	800	55	1.86	1930	6940	7265	0.073	5	12	23	82084	
SD400C16C	1600	800	55	1.86	1930	6940	7265	0.073	5	12	23	82084	
SD400C20C	2000	800	55	1.86	1930	6940	7265	0.073	5	12	23	82084	
SD400C24C	2400	800	55	1.86	1930	6940	7265	0.073	5	12	23	82084	

B-43 (E-Puk)



SD1100C25C	2500	1100	55	1.44	1500	8830	9250	0.038	5	12	23	82072	R27
SD1100C30C	3000	1100	55	1.44	1500	8830	9250	0.038	5	12	23	82072	
SD1100C32C	3200	1100	55	1.44	1500	8830	9250	0.038	5	12	23	82072	
SD1100C04C	400	1400	55	1.31	1500	10930	11450	0.038	5	12	23	82072	
SD1100C08C	800	1400	55	1.31	1500	10930	11450	0.038	5	12	23	82072	
SD1100C12C	1200	1400	55	1.31	1500	10930	11450	0.038	5	12	23	82072	
SD1100C16C	1600	1400	55	1.31	1500	10930	11450	0.038	5	12	23	82072	

### NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- Vfm measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- Vfm for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- If(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$		$I_F(AV)$	$\theta_{T_{HS}}$	$V_{FM}^{\oplus}$		$I_{FSM}$		$R_{\theta J-HS}$	Notes	Fax-on-Demand	Outline
	(V)	(A)			(V)	(A)	50 Hz	60 Hz				
	(V)	(A)	(°C)		(V)	(A)	(A)	(A)	°C/W			

## Standard Recovery

SD1100C20C	2000	1400	55	1.31	1500	10930	11450	0.038		5 12 23	82072	R27
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DO-200AB (B-Puk)



SD700C30L	3000	700	55	1.66	1000	6310	6600	0.05		5 12 23 25	82096	R28
SD700C36L	3600	700	55	1.66	1000	6310	6600	0.05		5 12 23 25	82096	
SD700C40L	4000	700	55	1.66	1000	6310	6600	0.05		5 12 23 25	82096	
SD700C45L	4500	700	55	1.66	1000	6310	6600	0.05		5 12 23 25	82096	
SD1100C25L	2500	910	55	1.44	1500	8830	9250	0.05		5 12 23	82073	
SD1100C30L	3000	910	55	1.44	1500	8830	9250	0.05		5 12 23	82073	
SD1100C32L	3200	910	55	1.44	1500	8830	9250	0.05		5 12 23	82073	
SD800C40L	4000	1065	55	1.95	2000	10250	10750	0.031		3 4 5	82085	
SD800C45L	4500	1065	55	1.95	2000	10250	10750	0.031		3 4 5	82085	
SD1100C04L	400	1170	55	1.31	1500	10930	11450	0.05		5 12 23	82073	
SD1100C08L	800	1170	55	1.31	1500	10930	11450	0.05		5 12 23	82073	
SD1100C12L	1200	1170	55	1.31	1500	10930	11450	0.05		5 12 23	82073	
SD1100C16L	1600	1170	55	1.31	1500	10930	11450	0.05		5 12 23	82073	
SD1100C20L	2000	1170	55	1.31	1500	10930	11450	0.05		5 12 23	82073	
SD800C24L	2400	1180	55	1.66	2000	11440	11980	0.031		3 4 5	82085	
SD800C30L	3000	1180	55	1.66	2000	11440	11980	0.031		3 4 5	82085	
SD800C36L	3600	1180	55	1.66	2000	11440	11980	0.031		3 4 5	82085	
SD1500C04L	400	1600	55	1.64	3000	14000	14700	0.031		5 12 23	82086	
SD1500C08L	800	1600	55	1.64	3000	14000	14700	0.031		5 12 23	82086	
SD1500C12L	1200	1600	55	1.64	3000	14000	14700	0.031		5 12 23	82086	
SD1500C16L	1600	1600	55	1.64	3000	14000	14700	0.031		5 12 23	82086	
SD1500C20L	2000	1600	55	1.64	3000	14000	14700	0.031		5 12 23	82086	
SD1500C25L	2500	1600	55	1.64	3000	14000	14700	0.031		5 12 23	82086	
SD1500C30L	3000	1600	55	1.64	3000	14000	14700	0.031		5 12 23	82086	
SD2000C04L	400	2100	55	1.55	6000	20100	21000	0.031		5 12 23	82088	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_o$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{th}J_C$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and  $R_{th}$  measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{T_{HS}}$	$V_{FM}^{\oplus}$	$I_{FM}$	$I_{FSM}$	$R_{\theta J-HS}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz (A)	60 Hz (A)			

## Standard Recovery

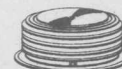
SD2000C08L	800	2100	55	1.55	6000	20100	21000	0.031	5 12 23	82088 R28
SD2000C10L	1000	2100	55	1.55	6000	20100	21000	0.031	5 12 23	82088

## DO-200AC (K-Puk)



SD1700C40K	4000	1875	55	2.11	4000	16800	17600	0.02	5 12 23 25	82087 R29
SD1700C45K	4500	1875	55	2.11	4000	16800	17600	0.02	5 12 23 25	82087
SD1700C24K	2400	2080	55	1.81	4000	20200	21150	0.02	5 12 23 25	82087
SD1700C30K	3000	2080	55	1.81	4000	20200	21150	0.02	5 12 23 25	82087
SD1700C36K	3600	2080	55	1.81	4000	20200	21150	0.02	5 12 23 25	82087
SD2500C12K	1200	3000	55	1.41	4000	26050	27300	0.02	5 12 23	82089
SD2500C16K	1600	3000	55	1.41	4000	26050	27300	0.02	5 12 23	82089
SD2500C20K	2000	3000	55	1.41	4000	26050	27300	0.02	5 12 23	82089
SD2500C25K	2500	3000	55	1.41	4000	26050	27300	0.02	5 12 23	82089
SD3000C04K	400	3800	55	1.22	6000	30100	31500	0.02	5 12 23	82090
SD3000C08K	800	3800	55	1.22	6000	30100	31500	0.02	5 12 23	82090
SD3000C10K	1000	3800	55	1.22	6000	30100	31500	0.02	5 12 23	82090

## B-44 (R-Puk)



SD4000C30R	3000	4450	55	1.44	6000	48200	50470	0.01	5 12 23	82033 R30
SD4000C34R	3400	4450	55	1.44	6000	48200	50470	0.01	5 12 23	82033
SD4000C38R	3800	4450	55	1.44	6000	48200	50470	0.01	5 12 23	82033
SD4000C40R	4000	4450	55	1.44	6000	48200	50470	0.01	5 12 23	82033
SD5000C20R	2000	5570	55	1.32	8000	57000	59700	0.01	5 12 23	82034
SD5000C24R	2400	5570	55	1.32	8000	57000	59700	0.01	5 12 23	82034
SD5000C26R	2600	5570	55	1.32	8000	57000	59700	0.01	5 12 23	82034

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- If(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT



Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{T_{HS}}$	$V_{FM}^{\oplus}$	$I_{FM}$	$I_{FSM}$	$R_{\theta J-HS}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	50 Hz (A) 60 Hz (A)	°C/W			

## Standard Recovery

SD5000C30R	3000	5570	55	1.32	8000	57000	59700	0.01	5	12 23	82034 R30
SD6000C12R	1200	6690	55	1.22	9000	64250	67280	0.01	5	12 23	82035
SD6000C16R	1600	6690	55	1.22	9000	64250	67280	0.01	5	12 23	82035
SD6000C20R	2000	6690	55	1.22	9000	64250	67280	0.01	5	12 23	82035
SD6000C25R	2500	6690	55	1.22	9000	64250	67280	0.01	5	12 23	82035
SD8500C04R	400	9570	55	0.97	10000	80300	84100	0.01	5	12 23	82035
SD8500C06R	600	9570	55	0.97	10000	80300	84100	0.01	5	12 23	82035

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{TC}$	$V_{FM} @ \pi X$	$I_{FSM}$	$R_{\theta JC(DC)}$	$P_R$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	50 Hz 60 Hz	(A) (A)	°C/W			

## Avalanche

## DO-203AA (DO-4)



A6F40	400	6	158	1.1	134	141	2.5	4	9 12 17 18	20009	R6
A6F60	600	6	158	1.1	134	141	2.5	4	9 12 17 18	20009	
A6F80	800	6	158	1.1	134	141	2.5	4	9 12 17 18	20009	
A6F100	1000	6	158	1.1	134	141	2.5	4	9 12 17 18	20009	
A6F120	1200	6	158	1.1	134	141	2.5	4	9 12 17 18	20009	
A12F40	400	12	144	1.26	225	235	2	7	9 12 17 18	20009	
A12F60	600	12	144	1.26	225	235	2	7	9 12 17 18	20009	
A12F80	800	12	144	1.26	225	235	2	7	9 12 17 18	20009	
A12F100	1000	12	144	1.26	225	235	2	7	9 12 17 18	20009	
A12F120	1200	12	144	1.26	225	235	2	7	9 12 17 18	20009	
A16F40	400	16	140	1.23	295	310	1.6	15	9 12 17 18	20009	
A16F60	600	16	140	1.23	295	310	1.6	15	9 12 17 18	20009	
A16F80	800	16	140	1.23	295	310	1.6	15	9 12 17 18	20009	
A16F100	1000	16	140	1.23	295	310	1.6	15	9 12 17 18	20009	
A16F120	1200	16	140	1.23	295	310	1.6	15	9 12 17 18	20009	
A25F40	400	25	120	0.9	300	314	1.5	10	12 17	82018	
A25F60	600	25	120	0.9	300	314	1.5	10	12 17	82018	
A25F80	800	25	120	0.9	300	314	1.5	10	12 17	82018	
A25F100	1000	25	120	0.9	300	314	1.5	10	12 17	82018	
A25F120	1200	25	120	0.9	300	314	1.5	10	12 17	82018	

## DO-203AB (DO-5)



40HA40	400	40	140	1.3	480	500	1	* 11	9 12 17 18	20014	R7
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## NOTES:

- Available on tape-and-reel
- For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For  $I_{RM}$ :  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_o$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For  $I_{RM}$ :  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- $I_{F(AV)}$  and  $R_{th}$  measured to heat sink
- $I_{FSM}$  measured at 50%  $V_{RRM}$  reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$	$I_F(AV)$	$\theta_{TC}$	$V_{FM} @ \pi X$	$I_{FSM}$		$R_{\theta JC(DC)}$	$P_R$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	50 Hz	60 Hz	(°C/W)	(°C/W)			

## Avalanche

40HA60	600	40	140	1.3	480	500	1	11	9 12 17 18	20014	R7
40HA80	800	40	140	1.3	480	500	1	11	9 12 17 18	20014	
40HA100	1000	40	140	1.3	480	500	1	11	9 12 17 18	20014	
40HA120	1200	40	110	1.3	480	500	1	11	9 12 17 18	20014	
40HA140	1400	40	110	1.3	480	500	1	11	9 12 17 18	20014	
40HA160	1600	40	110	1.3	480	500	1	11	9 12 17 18	20014	
70HA40	400	70	140	1.35	1000	1050	0.45	20	9 12 17 18	20014	
70HA60	600	70	140	1.35	1000	1050	0.45	20	9 12 17 18	20014	
70HA80	800	70	140	1.35	1000	1050	0.45	20	9 12 17 18	20014	
70HA100	1000	70	140	1.35	1000	1050	0.45	20	9 12 17 18	20014	
70HA120	1200	70	110	1.35	1000	1050	0.45	20	9 12 17 18	20014	
70HA140	1400	70	110	1.35	1000	1050	0.45	20	9 12 17 18	20014	
70HA160	1600	70	110	1.35	1000	1050	0.45	20	9 12 17 18	20014	

## NOTES:

- Available on tape-and-reel
- For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For  $I_{RM}$ :  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- $V_{FM}$  measured at  $T_J = T_J \text{ max.}$
- $I_o$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- $V_{FM}$  measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For  $I_{RM}$ :  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- $V_{FM}$  for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- $I_F(AV)$  and  $R_{th}$  measured to heat sink
- $I_{FSM}$  measured at 50%  $V_{RRM}$  reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$ (V)	$I_{F(AV)}$ (A)	$\theta_{TC}$ (°C)	$V_{FM} @ \pi X$ $I_{F(AV)}$ (V)	$I_{FSM}$ 50 Hz 60 Hz (A) (A)	$R_{\theta JC (DC)}$ K/W	Notes	Fax-on-Demand	Outline
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## Power Module

### Diode

### T-MODULE



T40HF10	100	40	85	1.3	480	500	1.36	2 8 9 27	20094	M3
T40HF20	200	40	85	1.3	480	500	1.36	2 8 9 27	20094	
T40HF40	400	40	85	1.3	480	500	1.36	2 8 9 27	20094	
T40HF60	600	40	85	1.3	480	500	1.36	2 8 9 27	20094	
T40HF80	800	40	85	1.3	480	500	1.36	2 8 9 27	20094	
T40HF100	1000	40	85	1.3	480	500	1.36	2 8 9 27	20094	
T40HF120	1200	40	85	1.3	480	500	1.36	2 8 9 27	20094	
T40HF140	1400	40	85	1.3	480	500	1.36	2 8 9 27	20094	
T40HF160	1600	40	85	1.3	480	500	1.36	2 8 9 27	20094	
T70HF10	100	70	85	1.35	1000	1050	0.69	2 8 9 27	20094	
T70HF20	200	70	85	1.35	1000	1050	0.69	2 8 9 27	20094	
T70HF40	400	70	85	1.35	1000	1050	0.69	2 8 9 27	20094	
T70HF60	600	70	85	1.35	1000	1050	0.69	2 8 9 27	20094	
T70HF80	800	70	85	1.35	1000	1050	0.69	2 8 9 27	20094	
T70HF100	1000	70	85	1.35	1000	1050	0.69	2 8 9 27	20094	
T70HF120	1200	70	85	1.35	1000	1050	0.69	2 8 9 27	20094	
T70HF140	1400	70	85	1.35	1000	1050	0.69	2 8 9 27	20094	
T70HF160	1600	70	85	1.35	1000	1050	0.69	2 8 9 27	20094	
T85HF10	100	85	85	1.27	1450	1500	0.62	2 8 9 27	20094	
T85HF20	200	85	85	1.27	1450	1500	0.62	2 8 9 27	20094	
T85HF40	400	85	85	1.27	1450	1500	0.62	2 8 9 27	20094	
T85HF60	600	85	85	1.27	1450	1500	0.62	2 8 9 27	20094	
T85HF80	800	85	85	1.27	1450	1500	0.62	2 8 9 27	20094	
T85HF100	1000	85	85	1.27	1450	1500	0.62	2 8 9 27	20094	
T85HF120	1200	85	85	1.27	1450	1500	0.62	2 8 9 27	20094	
T85HF140	1400	85	85	1.27	1450	1500	0.62	2 8 9 27	20094	

#### NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied, Tj=Tj max.=150°C
- For Ifm: Tj = 150°C
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at Tj=Tj max.
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at Tj=25°C
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied, Tj=Tj max.
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm: Tj=25°C
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max Tj.
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu$ s square pulse, Tj=Tj max
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT



Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{TC}$	$V_{FM} \otimes \pi X$	$I_{FSM}$	$R_{\theta JC (DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	$I_{F(AV)}$	50 Hz 60 Hz	K/W			

## Power Module

T85HF160	1600	85	85	1.27	1450	1500	0.62	2 8 9 27	20094	M3
T110HF10	100	110	85	1.35	1700	1780	0.47	2 8 9 27	20094	
T110HF20	200	110	85	1.35	1700	1780	0.47	2 8 9 27	20094	
T110HF40	400	110	85	1.35	1700	1780	0.47	2 8 9 27	20094	
T110HF60	600	110	85	1.35	1700	1780	0.47	2 8 9 27	20094	
T110HF80	800	110	85	1.35	1700	1780	0.47	2 8 9 27	20094	
T110HF100	1000	110	85	1.35	1700	1780	0.47	2 8 9 27	20094	
T110HF120	1200	110	85	1.35	1700	1780	0.47	2 8 9 27	20094	
T110HF140	1400	110	85	1.35	1700	1780	0.47	2 8 9 27	20094	
T110HF160	1600	110	85	1.35	1700	1780	0.47	2 8 9 27	20094	

## Diode

## Add-A-Pak



IRKE56/04	400	60	100	1.51	1350	1420	0.5	2 8 9 27	27140	M4
IRKE56/06	600	60	100	1.51	1350	1420	0.5	2 8 9 27	27140	
IRKE56/08	800	60	100	1.51	1350	1420	0.5	2 8 9 27	27140	
IRKE56/10	1000	60	100	1.51	1350	1420	0.5	2 8 9 27	27140	
IRKE56/12	1200	60	100	1.51	1350	1420	0.5	2 8 9 27	27140	
IRKE56/14	1400	60	100	1.51	1350	1420	0.5	2 8 9 27	27140	
IRKE56/16	1600	60	100	1.51	1350	1420	0.5	2 8 9 27	27140	
IRKE71/04	400	80	100	1.5	1500	1570	0.4	2 8 9 27	27140	
IRKE71/06	600	80	100	1.5	1500	1570	0.4	2 8 9 27	27140	
IRKE71/08	800	80	100	1.5	1500	1570	0.4	2 8 9 27	27140	
IRKE71/10	1000	80	100	1.5	1500	1570	0.4	2 8 9 27	27140	
IRKE71/12	1200	80	100	1.5	1500	1570	0.4	2 8 9 27	27140	
IRKE71/14	1400	80	100	1.5	1500	1570	0.4	2 8 9 27	27140	
IRKE71/16	1600	80	100	1.5	1500	1570	0.4	2 8 9 27	27140	
IRKE91/04	400	100	100	1.45	1700	1780	0.35	2 8 9 27	27141	
IRKE91/06	600	100	100	1.45	1700	1780	0.35	2 8 9 27	27141	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_o$  at ambient temperature
- $R_{th}$  is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- $I_F(AV)$  and  $R_{th}$  measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-34

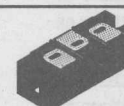
Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{TC}$	$V_{FM} @ \pi X$	$I_{FSM}$	$R_{\theta JC (DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	50 Hz (A) 60 Hz (A)	(K/W)			

## Power Module

IRKE91/08	800	100	100	1.45	1700	1780	0.35	2 8 9 27	27141	M4
IRKE91/10	1000	100	100	1.45	1700	1780	0.35	2 8 9 27	27141	
IRKE91/12	1200	100	100	1.45	1700	1780	0.35	2 8 9 27	27141	
IRKE91/14	1400	100	100	1.45	1700	1780	0.35	2 8 9 27	27141	
IRKE91/16	1600	100	100	1.45	1700	1780	0.35	2 8 9 27	27141	

## Diode

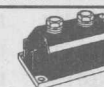
### INT-A-Pak



IRKE166-04	400	165	100	1.69	3350	3500	0.2	2 8 9 28 29	87096	M5
IRKE166-08	800	165	100	1.69	3350	3500	0.2	2 8 9 28 29	87096	
IRKE166-12	1200	165	100	1.69	3350	3500	0.2	2 8 9 28 29	87096	
IRKE166-16	1600	165	100	1.69	3350	3500	0.2	2 8 9 28 29	87096	
IRKE166-20	2000	165	100	1.69	3350	3500	0.2	2 8 9 28 29	87096	
IRKE196-04	400	195	100	1.38	4000	4200	0.2	2 8 9 28 29	87096	
IRKE196-08	800	195	100	1.38	4000	4200	0.2	2 8 9 28 29	87096	
IRKE196-12	1200	195	100	1.38	4000	4200	0.2	2 8 9 28 29	87096	
IRKE196-16	1600	195	100	1.38	4000	4200	0.2	2 8 9 28 29	87096	
IRKE196-20	2000	195	100	1.38	4000	4200	0.2	2 8 9 28 29	87096	
IRKE236-04	400	230	100	1.27	5500	5700	0.17	2 8 9 28 29	87096	
IRKE236-08	800	230	100	1.27	5500	5700	0.17	2 8 9 28 29	87096	
IRKE236-12	1200	230	100	1.27	5500	5700	0.17	2 8 9 28 29	87096	
IRKE236-16	1600	230	100	1.27	5500	5700	0.17	2 8 9 28 29	87096	
IRKE236-20	2000	230	100	1.27	5500	5700	0.17	2 8 9 28 29	87096	
IRKE236-24	2400	230	100	1.27	5500	5700	0.17	2 8 9 28 29	87096	

## Diode

### MAGN-A-Pak



IRKE250-04	400	250	100	1.29	5900	6180	0.16	2 8 9 29	87090	M6
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### NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$			$I_{F(AV)}$ @ $T_C$		$V_{FM} @ \pi X$		$I_{FSM}$		$R_{\theta JC (DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	(A)	(A)	(A)	50 Hz	60 Hz	K/W			

## Power Module

IRKE250-08	800	250	100	1.29	5900	6180	0.16	2	8	9	29	87090	M6
IRKE250-12	1200	250	100	1.29	5900	6180	0.16	2	8	9	29	87090	
IRKE250-16	1600	250	100	1.29	5900	6180	0.16	2	8	9	29	87090	
IRKE250-20	2000	250	100	1.29	5900	6180	0.16	2	8	9	29	87090	
IRKE270-04	400	270	100	1.48	7500	7850	0.125	2	8	9	29	87090	
IRKE270-08	800	270	100	1.48	7500	7850	0.125	2	8	9	29	87090	
IRKE270-12	1200	270	100	1.48	7500	7850	0.125	2	8	9	29	87090	
IRKE270-16	1600	270	100	1.48	7500	7850	0.125	2	8	9	29	87090	
IRKE270-20	2000	270	100	1.48	7500	7850	0.125	2	8	9	29	87090	
IRKE270-24	2400	270	100	1.48	7500	7850	0.125	2	8	9	29	87090	
IRKE270-30	3000	270	100	1.48	7500	7850	0.125	2	8	9	29	87090	
IRKE320-04	400	320	100	1.28	8500	8900	0.125	2	8	9	29	87090	
IRKE320-08	800	320	100	1.28	8500	8900	0.125	2	8	9	29	87090	
IRKE320-12	1200	320	100	1.28	8500	8900	0.125	2	8	9	29	87090	
IRKE320-16	1600	320	100	1.28	8500	8900	0.125	2	8	9	29	87090	
IRKE320-20	2000	320	100	1.28	8500	8900	0.125	2	8	9	29	87090	

## Diode / Diode

## Add-A-Pak



IRKD56/04	IRKC56/04	IRKJ56/04	400	60	100	1.51	1350	1420	0.25	2	8	9	27	27140	M4
IRKD56/06	IRKC56/06	IRKJ56/06	600	60	100	1.51	1350	1420	0.25	2	8	9	27	27140	
IRKD56/08	IRKC56/08	IRKJ56/08	800	60	100	1.51	1350	1420	0.25	2	8	9	27	27140	
IRKD56/10	IRKC56/10	IRKJ56/10	1000	60	100	1.51	1350	1420	0.25	2	8	9	27	27140	
IRKD56/12	IRKC56/12	IRKJ56/12	1200	60	100	1.51	1350	1420	0.25	2	8	9	27	27140	
IRKD56/14	IRKC56/14	IRKJ56/14	1400	60	100	1.51	1350	1420	0.25	2	8	9	27	27140	
IRKD56/16	IRKC56/16	IRKJ56/16	1600	60	100	1.51	1350	1420	0.25	2	8	9	27	27140	
IRKD71/04	IRKC71/04	IRKJ71/04	400	80	100	1.5	1500	1570	0.2	2	8	9	27	27140	
IRKD71/06	IRKC71/06	IRKJ71/06	600	80	100	1.5	1500	1570	0.2	2	8	9	27	27140	
IRKD71/08	IRKC71/08	IRKJ71/08	800	80	100	1.5	1500	1570	0.2	2	8	9	27	27140	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- $I_o$  at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

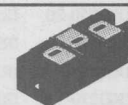
Part Number	Center tap common cathode	Center tap common anode	$V_{RRM}$ (V)	$I_{F(AV)}$ (A)	$\theta_{TC}$ (°C)	$V_{FM} @ \pi X$ $I_{F(AV)}$ (V)	$I_{FSM}$		$R_{\theta JC}$ (DC) K/W	Notes	Fax-on- Demand	Outline
							50 Hz	60 Hz				

## Power Module

IRKD71/10	IRKC71/10	IRKJ71/10	1000	80	100	1.5	1500	1570	0.2	2 8 9 27	27140	M4
IRKD71/12	IRKC71/12	IRKJ71/12	1200	80	100	1.5	1500	1570	0.2	2 8 9 27	27140	
IRKD71/14	IRKC71/14	IRKJ71/14	1400	80	100	1.5	1500	1570	0.2	2 8 9 27	27140	
IRKD71/16	IRKC71/16	IRKJ71/16	1600	80	100	1.5	1500	1570	0.2	2 8 9 27	27140	
IRKD91/04	IRKC91/04	IRKJ91/04	400	100	100	1.45	1700	1780	0.175	2 8 9 27	27141	
IRKD91/06	IRKC91/06	IRKJ91/06	600	100	100	1.45	1700	1780	0.175	2 8 9 27	27141	
IRKD91/08	IRKC91/08	IRKJ91/08	800	100	100	1.45	1700	1780	0.175	2 8 9 27	27141	
IRKD91/10	IRKC91/10	IRKJ91/10	1000	100	100	1.45	1700	1780	0.175	2 8 9 27	27141	
IRKD91/12	IRKC91/12	IRKJ91/12	1200	100	100	1.45	1700	1780	0.175	2 8 9 27	27141	
IRKD91/14	IRKC91/14	IRKJ91/14	1400	100	100	1.45	1700	1780	0.175	2 8 9 27	27141	
IRKD91/16	IRKC91/16	IRKJ91/16	1600	100	100	1.45	1700	1780	0.175	2 8 9 27	27141	

## Diode / Diode

## INT-A-Pak



IRKD166-04	IRKC166-04	IRKJ166-04	400	165	100	1.69	3350	3500	0.1	2 8 9 28 29	87096	M5
IRKD166-08	IRKC166-08	IRKJ166-08	800	165	100	1.69	3350	3500	0.1	2 8 9 28 29	87096	
IRKD166-12	IRKC166-12	IRKJ166-12	1200	165	100	1.69	3350	3500	0.1	2 8 9 28 29	87096	
IRKD166-16	IRKC166-16	IRKJ166-16	1600	165	100	1.69	3350	3500	0.1	2 8 9 28 29	87096	
IRKD166-20	IRKC166-20	IRKJ166-20	2000	165	100	1.69	3350	3500	0.1	2 8 9 28 29	87096	
IRKD196-04	IRKC196-04	IRKJ196-04	400	195	100	1.38	4000	4200	0.1	2 8 9 28 29	87096	
IRKD196-08	IRKC196-08	IRKJ196-08	800	195	100	1.38	4000	4200	0.1	2 8 9 28 29	87096	
IRKD196-12	IRKC196-12	IRKJ196-12	1200	195	100	1.38	4000	4200	0.1	2 8 9 28 29	87096	
IRKD196-16	IRKC196-16	IRKJ196-16	1600	195	100	1.38	4000	4200	0.1	2 8 9 28 29	87096	
IRKD196-20	IRKC196-20	IRKJ196-20	2000	195	100	1.38	4000	4200	0.1	2 8 9 28 29	87096	
IRKD196-24	IRKC196-24	IRKJ196-24	2400	195	100	1.38	4000	4200	0.1	2 8 9 28 29	87096	
IRKD236-04	IRKC236-04	IRKJ236-04	400	230	100	1.27	5500	5700	0.085	2 8 9 28 29	87096	
IRKD236-08	IRKC236-08	IRKJ236-08	800	230	100	1.27	5500	5700	0.085	2 8 9 28 29	87096	
IRKD236-12	IRKC236-12	IRKJ236-12	1200	230	100	1.27	5500	5700	0.085	2 8 9 28 29	87096	
IRKD236-16	IRKC236-16	IRKJ236-16	1600	230	100	1.27	5500	5700	0.085	2 8 9 28 29	87096	

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for RthJC is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- If(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT



# Diodes

International  
IOR Rectifier

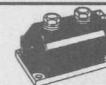
Part Number	Center tap common cathode	Center tap common anode	$V_{RRM}$ (V)	$I_{F(AV)}$ (A)	$\theta_{TC}$ (°C)	$V_{FM} \pi X$ $I_{F(AV)}$ (V)	$I_{FSM}$ 50 Hz 60 Hz		$R_{\theta JC (DC)}$ KW	Notes	Fax-on- Demand	Outline
							(A)	(A)				

## Power Module

IRKD236-20	IRKC236-20	IRKJ236-20	2000	230	100	1.27	5500	5700	0.085	2 8 9 28 29	87096	M5
IRKD236-22	IRKC236-22	IRKJ236-22	2200	230	100	1.27	5500	5700	0.085	2 8 9 28 29	87096	
IRKD236-24	IRKC236-24	IRKJ236-24	2400	230	100	1.27	5500	5700	0.085	2 8 9 28 29	87096	

## Diode / Diode

## MAGN-A-Pak



IRKD250-04	IRKC250-04	IRKJ250-04	400	250	100	1.29	5900	6180	0.08	2 8 9 29	87090	M6
IRKD250-08	IRKC250-08	IRKJ250-08	800	250	100	1.29	5900	6180	0.08	2 8 9 29	87090	
IRKD250-12	IRKC250-12	IRKJ250-12	1200	250	100	1.29	5900	6180	0.08	2 8 9 29	87090	
IRKD250-16	IRKC250-16	IRKJ250-16	1600	250	100	1.29	5900	6180	0.08	2 8 9 29	87090	
IRKD250-20	IRKC250-20	IRKJ250-20	2000	250	100	1.29	5900	6180	0.08	2 8 9 29	87090	
IRKD270-04	IRKC270-04	IRKJ270-04	400	270	100	1.48	7500	7850	0.063	2 8 9 29	87090	
IRKD270-08	IRKC270-08	IRKJ270-08	800	270	100	1.48	7500	7850	0.063	2 8 9 29	87090	
IRKD270-12	IRKC270-12	IRKJ270-12	1200	270	100	1.48	7500	7850	0.063	2 8 9 29	87090	
IRKD270-16	IRKC270-16	IRKJ270-16	1600	270	100	1.48	7500	7850	0.063	2 8 9 29	87090	
IRKD270-20	IRKC270-20	IRKJ270-20	2000	270	100	1.48	7500	7850	0.063	2 8 9 29	87090	
IRKD270-24	IRKC270-24	IRKJ270-24	2400	270	100	1.48	7500	7850	0.063	2 8 9 29	87090	
IRKD270-30	IRKC270-30	IRKJ270-30	3000	270	100	1.48	7500	7850	0.063	2 8 9 29	87090	
IRKD320-04	IRKC320-04	IRKJ320-04	400	320	100	1.28	8500	8900	0.063	2 8 9 29	87090	
IRKD320-08	IRKC320-08	IRKJ320-08	800	320	100	1.28	8500	8900	0.063	2 8 9 29	87090	
IRKD320-12	IRKC320-12	IRKJ320-12	1200	320	100	1.28	8500	8900	0.063	2 8 9 29	87090	
IRKD320-16	IRKC320-16	IRKJ320-16	1600	320	100	1.28	8500	8900	0.063	2 8 9 29	87090	
IRKD320-20	IRKC320-20	IRKJ320-20	2000	320	100	1.28	8500	8900	0.063	2 8 9 29	87090	

### NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- If(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

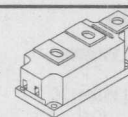
Input Products Page D-38

Part Number	$V_{RRM}$	$I_{F(AV)}$	$\theta_{TC}$	$V_{FM}^{\circ}$	$I_{FSM}$	$R_{\theta JC (DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	50 Hz 60 Hz	(A) (A) K/W			

## Power Module

## Diode / Diode

## Super MAGN-A-Pak



IRKD600-08	800	600	100	1.25	16200	17200	0.032	2	8	9	29	M7
IRKD600-12	1200	600	100	1.25	16200	17200	0.032	2	8	9	29	M7
IRKD600-16	1600	600	100	1.25	16200	17200	0.032	2	8	9	29	M7
IRKD600-20	2000	600	100	1.25	16200	17200	0.032	2	8	9	29	M7

## NOTES:

- Available on tape-and-reel
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 150^\circ\text{C}$
- For Ifrm:  $T_J = 150^\circ\text{C}$
- Available with 3mm and 5mm cropped leads. To specify, add suffix 'L3' for 3mm or 'L5' for 5mm, e.g. 1KAB10EL3.
- VFM measured at  $T_J = T_J \text{ max.}$
- Io at ambient temperature
- Rth is junction-to-ambient
- Value given for  $R_{thJC}$  is per module
- Vfm measured at  $T_J = 25^\circ\text{C}$
- RMS isolation voltage=2700V - 50Hz
- RMS isolation voltage=4000V - 50Hz
- For Ifsm: 100% VRRM reapplied,  $T_J = T_J \text{ max.}$
- Additional packages available
- Available leaded. To order, add 1 (or 2 for leaded and sleeved) to second digit of part number, e.g. 41HF10 or 42HF10
- For Ifrm:  $T_J = 25^\circ\text{C}$
- Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (i.e. 8AF4RPP, SD600R08PC)
- Cathode to stud. To order anode to stud, append 'R' to part letters, e.g. 12FR100
- Available with metric stud. To order, add 'M' to part number, e.g. 6F10M, SD600N08MC
- Available with stud top case or flag terminal. To order, add 2 for stud top case or 4 for flag terminal to second digit of part number, e.g. 152L5A.
- 1N3288 series also available.
- VFM for JEDEC types is registered at max  $T_J$ .
- Available with strengthening cone for high-g applications. To order, change part number from 301 to 305.3
- DC operation, double side cooled
- IF(AV) and Rth measured to heat sink
- Ifsm measured at 50% VRRM reapplied
- 10  $\mu\text{s}$  square pulse,  $T_J = T_J \text{ max.}$
- RMS isolation voltage=3500V - 50Hz
- Available with spacers and longer screws
- RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	Side Dimension (inches)	$I_T$ (AV) (A)	$V_{RRM}$ (V)	Anode metalization	Cathode metalization	Quantity per Carrier	Equivalent Finished Product(s)
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**Die**

IR135DM08C	0.135x0.100	8	800	Aluminum	Silver	360	8EWS08	
IR135DM12C	0.135x0.100	8	1200	Aluminum	Silver	360	8EWS12	
IR180DM08C	0.180	20	800	Aluminum	Silver	256	20ETS08	
IR180DM12C	0.180	20	1200	Aluminum	Silver	256	20ETS12	
IR230DM08C	0.230	40	800	Aluminum	Silver	196	40EPS08	
IR230DM12C	0.230	40	1200	Aluminum	Silver	196	40EPS12	
IR340DM08C	0.350x0.230	60	800	Aluminum	Silver	100	60EPS08	
IR340DM12C	0.350x0.230	60	1200	Aluminum	Silver	100	60EPS12	
IR350DM08C	0.350	70	800	Aluminum	Silver	100	IRKD56/08	IRKE56/08
IR350DM12C	0.350	70	1200	Aluminum	Silver	100	IRKD56/12	IRKE56/12
IR390DM08C	0.390x0.270	80	800	Aluminum	Silver	49	80EPS08S	
IR390DM12C	0.390x0.270	80	1200	Aluminum	Silver	49	80EPS12S	
IR480DM08C	0.480	90	800	Aluminum	Silver	49	IRKD91/08	IRKE91/08
IR480DM12C	0.480	90	1200	Aluminum	Silver	49	IRKD91/12	IRKE91/12

## Plastic-Pack Thyristors in D<sup>2</sup> Pak, TO-220 and TO-247 packages

Voltage Grade	<div>16A<sub>RMS</sub>      25A<sub>RMS</sub></div> <div></div> <div>D<sup>2</sup>Pak</div>		<div>16A<sub>RMS</sub>      25A<sub>RMS</sub></div> <div></div> <div>TO-220</div>		<div>55A<sub>RMS</sub></div> <div></div> <div>TO-247</div>
	16TTS08S	25TTS08S	16TTS08	25TTS08	40TPS08
1200	16TTS12S	25TTS12S	16TTS12	25TTS12	40TPS12
1600	16TTS16S	25TTS16S	16TTS16	25TTS16	40TPS16



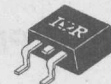
# Phase Control SCR

International  
IOR Rectifier

Part Number	$V_{RRM}$	$I_{T(RMS)}$	$I_{T(AV)} @ T_C$	$I_{TSM}$		$V_{GT}$	$I_{GT}$	$V_{TM} @ I_{TM}$	$I_{TM}$	$dv/dt$	$R_{\theta}$	Notes	Fax-on-Demand	Outline
	(V)			50 Hz	60 Hz									
	(V)	(A)	(A)	(°C)	(A)	(A)	(V)	(mA)	(V)	(A)	(V/μs)	(°C/W)		

## Thyristors

D<sup>2</sup>Pak



16TTS08S	800	16	10	98	170	175	2	45	1.4	10	500	1.3	1	82115	H6
16TTS12S	1200	16	10	98	170	175	2	45	1.4	10	500	1.3	1	82115	
16TTS16S	1600	16	10	98	170	175	2	45	1.4	10	500	1.3	1	82115	
25TTS08S	800	25	16	94	210	220	2	45	1.25	16	500	1.1	1	82117	
25TTS12S	1200	25	16	94	210	220	2	45	1.25	16	500	1.1	1	82117	
25TTS16S	1600	25	16	94	210	220	2	45	1.25	16	500	1.1	1	82117	

TO-220AC



16TTS08	800	16	10	98	170	175	2	45	1.4	10	500	1.3		82115	H12
16TTS12	1200	16	10	98	170	175	2	45	1.4	10	500	1.3		82115	
16TTS16	1600	16	10	98	170	175	2	45	1.4	10	500	1.3		82115	
25TTS08	800	25	16	94	210	220	2	45	1.25	16	500	1.1		82117	
25TTS012	1200	25	16	94	210	220	2	45	1.25	16	500	1.1		82117	
25TTS16	1600	25	16	94	210	220	2	45	1.25	16	500	1.1		82117	

TO-247AC (TO-3P)



40TPS08	800	55	35	85	335	350	2.5	150	1.43	40	500	0.6		82107	H13
40TPS12	1200	55	35	85	335	350	2.5	150	1.43	40	500	0.6		82107	
40TPS16	1600	55	35	85	335	350	2.5	150	1.43	40	500	0.6		82107	

### NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^\circ\text{C}$
- $V_{TM} @ \pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 0.67  $V_{DRM}$ .  $T_J = 25^\circ\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dv/dt$  linear to 0.8  $V_{DRM}$ ;  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 100%  $V_{DRM}$ ;  $T_J = 125^\circ\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^\circ\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-42

# Phase Control SCR

International  
**IOR** Rectifier

Part Number	$V_{RRM}$ $V_{DRM}$ (V)	$I_{T(RMS)}$ (A)	$I_{T(AV)}$ @ $T_C$ (A)	$I_{TSM}$ 50 Hz 60 Hz (A) (A)	$V_{GT}$ (V)	$I_{GT}$ (mA)	$V_{TM}$ @ $I_{TM}$ (V) (A)	$dv/dt$ (V/ $\mu$ s)	$R_{\theta JC}$ (DC) ( $^{\circ}$ C/W)	Notes	Fax-on-Demand	Outline
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## Thyristors

TO-208AA (TO-48)



10RIA10	100	25	10	85	190	200	2	60	1.75	300	1.85	2	3	4	5	6	30060	T1
10RIA20	200	25	10	85	190	200	2	60	1.75	300	1.85	2	3	4	5	6	30060	
10RIA40	400	25	10	85	190	200	2	60	1.75	300	1.85	2	3	4	5	6	30060	
10RIA60	600	25	10	85	190	200	2	60	1.75	300	1.85	2	3	4	5	6	30060	
10RIA80	800	25	10	85	190	200	2	60	1.75	300	1.85	2	3	4	5	6	30060	
10RIA100	1000	25	10	85	190	200	2	60	1.75	300	1.85	2	3	4	5	6	30060	
10RIA120	1200	25	10	85	190	200	2	60	1.75	300	1.85	2	3	4	5	6	30060	
2N681	25	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
2N682	50	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
2N683	100	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
16RIA10	100	35	16	85	285	300	2	60	1.75	300	1.15	2	3	4	5	6	30060	
2N684	150	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
2N685	200	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
16RIA20	200	35	16	85	285	300	2	60	1.75	300	1.15	2	3	4	5	6	30060	
2N686	250	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
2N687	300	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
2N688	400	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
16RIA40	400	35	16	85	285	300	2	60	1.75	300	1.15	2	3	4	5	6	30060	
2N689	500	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
16RIA60	600	35	16	85	285	300	2	60	1.75	300	1.15	2	3	4	5	6	30060	
2N690	600	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
2N691	700	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
16RIA80	800	35	16	85	285	300	2	60	1.75	300	1.15	2	3	4	5	6	30060	
2N692	800	25	16	65	145	150	2	40	2	250	1.5	2	3	4	5		30081	
16RIA100	1000	35	16	85	285	300	2	60	1.75	300	1.15	2	3	4	5	6	30060	
16RIA120	1200	35	16	85	285	300	2	60	1.75	300	1.15	2	3	4	5	6	30060	
16RIA140	1400	35	16	80	190	200	2	60	1.8	300	1.15	2	3	4	5	6	30060	
16RIA160	1600	35	16	80	190	200	2	60	1.8	300	1.15	2	3	4	5	6	30060	
22RIA10	100	35	22	85	335	355	2	60	1.7	300	0.86	2	3	4	5	6	30060	
22RIA20	200	35	22	85	335	355	2	60	1.7	300	0.86	2	3	4	5	6	30060	
22RIA40	400	35	22	85	335	355	2	60	1.7	300	0.86	2	3	4	5	6	30060	

### NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max} = 125^{\circ}\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^{\circ}\text{C}$
- $V_{TM}$  @  $\pi \times I_{T(AV)}$ ,  $T_J = 125^{\circ}\text{C}$
- $dv/dt$  exponential to 0.67  $V_{DRM}$ ,  $T_J = 25^{\circ}\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dv/dt$  linear to 0.8  $V_{DRM}$ ;  $T_J = 125^{\circ}\text{C}$
- $dv/dt$  exponential to 100%  $V_{DRM}$ ;  $T_J = 125^{\circ}\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^{\circ}\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-43

# Phase Control SCR

International  
IOR Rectifier

Part Number	$V_{RRM}$	$I_{T(RMS)}$	$I_{T(AV)} @ T_C$	$I_{TSM}$		$V_{GT}$	$I_{GT}$	$V_{TM} @ I_{TM}$	$dV/dt$	$R_{\theta JC} (DC)$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(A)	50 Hz	60 Hz	(V)	(mA)	(V)	(A)	(V/ $\mu$ s)	( $^{\circ}$ C/W)		

## Thyristors

22RIA60	600	35	22	85	335	355	2	60	1.7	300	0.86	2 3 4 5 6	30060	T1
2N5204	600	35	22	40	285	300	2	40	2.3	250	1.5	2 3 4 5	30081	
2N5205	800	35	22	40	285	300	2	40	2.3	250	1.5	2 3 4 5	30081	
22RIA80	800	35	22	85	335	355	2	60	1.7	300	0.86	2 3 4 5 6	30060	
2N5206	1000	35	22	40	285	300	2	40	2.3	250	1.5	2 3 4 5	30081	
22RIA100	1000	35	22	85	335	355	2	60	1.7	300	0.86	2 3 4 5 6	30060	
2N5207	1200	35	22	40	285	300	2	40	2.3	250	1.5	2 3 4 5	30081	
22RIA120	1200	35	22	85	335	355	2	60	1.7	300	0.86	2 3 4 5 6	30060	
22RIA140	1400	35	22	80	285	300	2	60	1.8	300	0.86	2 3 4 5 6	30060	
22RIA160	1600	35	22	80	285	300	2	60	1.8	300	0.86	2 3 4 5 6	30060	
25RIA10	100	40	25	85	350	370	2	60	1.7	300	0.75	2 3 4 5 6	30060	
25RIA20	200	40	25	85	350	370	2	60	1.7	300	0.75	2 3 4 5 6	30060	
25RIA40	400	40	25	85	350	370	2	60	1.7	300	0.75	2 3 4 5 6	30060	
25RIA60	600	40	25	85	350	370	2	60	1.7	300	0.75	2 3 4 5 6	30060	
25RIA80	800	40	25	85	350	370	2	60	1.7	300	0.75	2 3 4 5 6	30060	
25RIA100	1000	40	25	85	350	370	2	60	1.7	300	0.75	2 3 4 5 6	30060	
25RIA120	1200	40	25	85	350	370	2	60	1.7	300	0.75	2 3 4 5 6	30060	
25RIA140	1400	40	25	80	335	350	2	60	1.8	300	0.75	2 3 4 5 6	30060	
25RIA160	1600	40	25	80	335	350	2	60	1.8	300	0.75	2 3 4 5 6	30060	

## TO-208AC (TO-65)



50RIA10	100	80	50	94	1200	1255	2.5	100	1.6	500	0.35	2 3 4 6 15	30062	T2
50RIA20	200	80	50	94	1200	1255	2.5	100	1.6	500	0.35	2 3 4 6 15	30062	
50RIA40	400	80	50	94	1200	1255	2.5	100	1.6	500	0.35	2 3 4 6 15	30062	
50RIA60	600	80	50	94	1200	1255	2.5	100	1.6	500	0.35	2 3 4 6 15	30062	
50RIA80	800	80	50	94	1200	1255	2.5	100	1.6	500	0.35	2 3 4 6 15	30062	
50RIA100	1000	80	50	94	1200	1255	2.5	100	1.6	500	0.35	2 3 4 6 15	30062	
50RIA120	1200	80	50	94	1200	1255	2.5	100	1.6	500	0.35	2 3 4 6 15	30062	
50RIA140	1400	80	50	94	900	942	2.5	100	1.6	500	0.35	2 3 4 6 15	30062	
50RIA160	1600	80	50	94	900	942	2.5	100	1.6	500	0.35	2 3 4 6 15	30062	

### NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max} = 125^{\circ}\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^{\circ}\text{C}$
- $V_{TM} @ I_{TM}$ :  $T_J = 125^{\circ}\text{C}$
- $dV/dt$  exponential to 0.67  $V_{DRM}$ .  $T_J = 25^{\circ}\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dV/dt$  linear to 0.8  $V_{DRM}$ ;  $T_J = 125^{\circ}\text{C}$
- $dV/dt$  exponential to 100%  $V_{DRM}$ ;  $T_J = 125^{\circ}\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^{\circ}\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT

# Phase Control SCR

ROBIL International  
IOR Rectifier

Part Number	$V_{RRM}$	$V_{DRM}$	$I_{T(RMS)}$	$I_{T(AV)}@T_C$	$I_{TSM}$		$V_{GT}$	$I_{GT}$	$V_{TM}$	$I_{TM}$	$dv/dt$	$R_{\theta JC}(DC)$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(A)	(°C)	50 Hz	60 Hz	(V)	(mA)	(V)	(A)	(V/μs)	(°C/W)			

## Thyristors

### TO-208AD (TO-83)



2N1800	600	110	70	65	955	1000	2.5	70	1.85	220	200	0.4	2 3 4 7 8 9	30082	T3
2N1801	700	110	70	65	955	1000	2.5	70	1.85	220	200	0.4	2 3 4 7 8 9	30082	
2N1802	800	110	70	65	955	1000	2.5	70	1.85	220	200	0.4	2 3 4 7 8 9	30082	
2N1803	900	110	70	65	955	1000	2.5	110	2	220	200	0.4	2 3 4 7 8 9	30082	
2N1804	1000	110	70	65	955	1000	2.5	110	2	220	200	0.4	2 3 4 7 8 9	30082	

### TO-209AC (TO-94)



80RIA40	400	125	80	85	1600	1675	2.5	120	1.4	250	500	0.3	2 3 4 6 7 9 12 13	30085	T4
80RIA80	800	125	80	85	1600	1675	2.5	120	1.4	250	500	0.3	2 3 4 6 7 9 12 13	30085	
80RIA120	1200	125	80	85	1600	1675	2.5	120	1.4	250	500	0.3	2 3 4 6 7 9 12 13	30085	

### TO-209AC (TO-94)



110RKI40	400	172	110	90	1750	1830	2	100	1.5	350	500	0.27	2 3 4 6 7 9 12 13	25152	T6
110RKI80	800	172	110	90	1750	1830	2	100	1.5	350	500	0.27	2 3 4 6 7 9 12 13	25152	
110RKI120	1200	172	110	90	1750	1830	2	100	1.5	350	500	0.27	2 3 4 6 7 9 12 13	25152	

### TO-209AC (TO-94)



ST110S04P0V	400	175	110	90	2270	2380	3	150	1.52	350	500	0.195	2 3 7 10	25167	T5
ST110S08P0V	800	175	110	90	2270	2380	3	150	1.52	350	500	0.195	2 3 7 10	25167	
ST110S12P0V	1200	175	110	90	2270	2380	3	150	1.52	350	500	0.195	2 3 7 10	25167	

## NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^\circ\text{C}$
- $V_{TM}$  @  $\pi$  X  $I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 0.67 VDRM,  $T_J = 25^\circ\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dv/dt$  linear to 0.8 Vdrm;  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 100% VDRM;  $T_J = 125^\circ\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^\circ\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-45



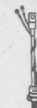
# Phase Control SCR

International  
**IOR** Rectifier

Part Number	$V_{RRM}$	$I_{T(RMS)}$	$I_{T(AV)}$	$T_C$	$I_{TSM}$		$V_{GT}$	$I_{GT}$	$V_{TM}$	$I_{TM}$	$dv/dt$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(A)	(°C)	50 Hz	60 Hz	(V)	(mA)	(V)	(A)	(V/μs)	(°C/W)			

## Thyristors

### TO-209AC (TO-94)



ST110S14P0	1400	175	110	90	2270	2380	3	150	1.52	350	500	0.195	2 3 7 10	25167	T7
ST110S16P0	1600	175	110	90	2270	2380	3	150	1.52	350	500	0.195	2 3 7 10	25167	

### TO-209AB (TO-93)



180RKI40	400	285	180	80	3500	3660	2.5	150	1.35	570	500	0.15	2 3 4 7 9 12 13	25153	T9
180RKI80	800	285	180	80	3500	3660	2.5	150	1.35	570	500	0.15	2 3 4 7 9 12 13	25153	
180RKI100	1000	285	180	80	3500	3660	2.5	150	1.35	570	500	0.15	2 3 4 7 9 12 13	25153	

### TO-209AB (TO-93)



ST180S04P0V	400	314	200	85	4200	4400	3	150	1.75	570	500	0.105	2 3 4 6 7 9 11	25165	T8
ST180S08P0V	800	314	200	85	4200	4400	3	150	1.75	570	500	0.105	2 3 4 6 7 9 11 16	25165	
ST180S12P0V	1200	314	200	85	4200	4400	3	150	1.75	570	500	0.105	2 3 4 6 7 9 11 16	25165	

### TO-209AB (TO-93)



ST180S16P0	1600	314	200	85	4200	4400	3	150	1.75	570	500	0.105	2 3 4 6 7 9 11 16	25165	T10
ST180S18P0	1800	314	200	85	4200	4400	3	150	1.75	570	500	0.105	2 3 4 6 7 9 11 16	25165	
ST180S20P0	2000	314	200	85	4200	4400	3	150	1.75	570	500	0.105	2 3 4 6 7 9 11 16	25165	

## NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max} = 125^\circ\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^\circ\text{C}$
- $V_{TM}$  @  $\pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 0.67  $V_{DRM}$ ,  $T_J = 25^\circ\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dv/dt$  linear to 0.8  $V_{DRM}$ ;  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 100%  $V_{DRM}$ ;  $T_J = 125^\circ\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^\circ\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-46

# Phase Control SCR

International  
TOR Rectifier

Part Number	$V_{RRM}$	$V_{DRM}$	$I_{T(RMS)}$	$I_{T(AV)}$	$I_{T(C)}$	$I_{TSM}$	$V_{GT}$	$I_{GT}$	$V_{TM}$	$I_{TM}$	$dv/dt$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(V)	(A)	(A)	(°C)	50 Hz 60 Hz	(V)	(mA)	(V)	(A)	(V/μs)	(°C/W)			

## Thyristors

### TO-209AB (TO-93)



ST230S04P0V	400	361	230	85	4800	5000	3	150	1.55	720	500	0.1	2 3 4 6 7 9 11 16	25163	T8
ST230S08P0V	800	361	230	85	4800	5000	3	150	1.55	720	500	0.1	2 3 4 6 7 9 11 16	25163	
ST230S12P0V	1200	361	230	85	4800	5000	3	150	1.55	720	500	0.1	2 3 4 6 7 9 11 16	25163	

### TO-209AB (TO-93)



ST230S14P0	1400	361	230	85	4800	5000	3	150	1.55	720	500	0.1	2 3 4 6 7 9 11 16	25163	T10
ST230S16P0	1600	361	230	85	4800	5000	3	150	1.55	720	500	0.1	2 3 4 6 7 9 11 16	25163	

### TO-209AB (TO-93)



ST280S04P0V	400	440	280	85	6600	6900	3	150	1.28	880	500	0.105	2 3 4 6 7 9 11 16	25161	T8
ST280S06P0V	600	440	280	85	6600	6900	3	150	1.28	880	500	0.105	2 3 4 6 7 9 11 16	25161	

### TO-209AE (TO-118)



ST300S04P0	400	470	300	75	6730	7040	3	200	1.66	940	500	0.1	2 3 4 6 7 9 11	25158	T11
ST300S08P0	800	470	300	75	6730	7040	3	200	1.66	940	500	0.1	2 3 4 6 7 9 11	25158	
ST300S12P0	1200	470	300	75	6730	7040	3	200	1.66	940	500	0.1	2 3 4 6 7 9 11	25158	
ST300S16P0	1600	470	300	75	6730	7040	3	200	1.66	940	500	0.1	2 3 4 6 7 9 11	25158	
ST300S18P0	1800	470	300	75	6730	7040	3	200	1.66	940	500	0.1	2 3 4 6 7 9 11	25158	
ST300S20P0	2000	470	300	75	6730	7040	3	200	1.66	940	500	0.1	2 3 4 6 7 9 11	25158	
ST330S04P0	400	520	330	75	7570	7920	3	200	1.51	1040	500	0.1	2 3 4 6 7 9 11	25156	
ST330S08P0	800	520	330	75	7570	7920	3	200	1.51	1040	500	0.1	2 3 4 6 7 9 11	25156	
ST330S12P0	1200	520	330	75	7570	7920	3	200	1.51	1040	500	0.1	2 3 4 6 7 9 11	25156	
ST330S14P0	1400	520	330	75	7570	7920	3	200	1.51	1040	500	0.1	2 3 4 6 7 9 11	25156	
ST330S16P0	1600	520	330	75	7570	7920	3	200	1.51	1040	500	0.1	2 3 4 6 7 9 11	25156	

## NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max} = 125^\circ\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^\circ\text{C}$
- $V_{TM}$  @  $\pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 0.67  $V_{DRM}$ ,  $T_J = 25^\circ\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dv/dt$  linear to 0.8  $V_{DRM}$ ;  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 100%  $V_{DRM}$ ;  $T_J = 125^\circ\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^\circ\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-47

# Phase Control SCR

International  
TOR Rectifier

Part Number	$V_{RRM}$	$V_{DRM}$	$I_{T(RMS)}$	$I_{T(AV)}^{\text{①}}$	$I_{TSM}$	50 Hz	60 Hz	$V_{GT}$	$I_{GT}$	$V_{TM}$	$I_{TM}$	$dv/dt$	$R_{\theta J-HS}$	Notes	Fax-on-Demand	Outline
	(V)	(V)	(A)	(A)	(A)	(A)	(A)	(V)	(mA)	(V)	(A)	(V/ $\mu$ s)	( $^{\circ}$ C/W)			

## Thyristors

TO-200AA (A-Puk)



ST180C04C0	400	660	350	55	4200	4400	3	150	1.96	750	500	0.08	2 3 7 9	25164	T12
ST180C08C0	800	660	350	55	4200	4400	3	150	1.96	750	500	0.08	2 3 7 9	25164	
ST180C12C0	1200	660	350	55	4200	4400	3	150	1.96	750	500	0.08	2 3 7 9	25164	
ST180C16C0	1600	660	350	55	4200	4400	3	150	1.96	750	500	0.08	2 3 7 9	25164	
ST180C18C0	1800	660	350	55	4200	4400	3	150	1.96	750	500	0.08	2 3 7 9	25164	
ST180C20C0	2000	660	350	55	4200	4400	3	150	1.96	750	500	0.08	2 3 7 9	25164	
ST230C04C0	400	780	410	55	4800	5000	3	150	1.69	880	500	0.08	2 3 7 9	25162	
ST230C08C0	800	780	410	55	4800	5000	3	150	1.69	880	500	0.08	2 3 7 9	25162	
ST230C12C0	1200	780	410	55	4800	5000	3	150	1.69	880	500	0.08	2 3 7 9	25162	
ST230C14C0	1400	780	410	55	4800	5000	3	150	1.69	880	500	0.08	2 3 7 9	25162	
ST230C16C0	1600	780	410	55	4800	5000	3	150	1.69	880	500	0.08	2 3 7 9	25162	
ST280C04C0	400	960	500	55	6600	6900	3	150	1.36	1050	500	0.08	2 3 7 9	25159	
ST280CH04C0	400	1130	500	80	6000	6300	3	150	1.35	1000	500	0.08	2 3 7 9 10	25160	
ST280C06C0	600	960	500	55	6600	6900	3	150	1.36	1050	500	0.08	2 3 7 9	25159	
ST280CH06C0	600	1130	500	80	6000	6300	3	150	1.35	1000	500	0.08	2 3 7 9 10	25160	

### NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max} = 125^{\circ}\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^{\circ}\text{C}$
- $V_{TM}$  @  $\pi$  X  $I_{T(AV)}$ ,  $T_J = 125^{\circ}\text{C}$
- $dv/dt$  exponential to 0.67  $V_{DRM}$ ,  $T_J = 25^{\circ}\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dv/dt$  linear to 0.8  $V_{DRM}$ ;  $T_J = 125^{\circ}\text{C}$
- $dv/dt$  exponential to 100%  $V_{DRM}$ ;  $T_J = 125^{\circ}\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^{\circ}\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-48

# Phase Control SCR

International  
TOR Rectifier

Part Number	$V_{RRM}$	$I_{T(RMS)}$	$I_{T(AV)}$	$T_C$	$I_{TSM}$		$V_{GT}$	$I_{GT}$	$V_{TM}$	$I_{TM}$	$dv/dt$	$R_{\theta J-HS}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(A)	(°C)	50 Hz	60 Hz	(V)	(mA)	(V)	(A)	(V/ $\mu$ s)	(°C/W)			

## Thyristors

TO-200AB (E-Puk)



ST300C04C0	400	1290	650	55	6730	7040	3	200	2.18	1630	500	0.04	2 3 7 9	25157	T13
ST300C08C0	800	1290	650	55	6730	7040	3	200	2.18	1630	500	0.04	2 3 7 9	25157	
ST300C12C0	1200	1290	650	55	6730	7040	3	200	2.18	1630	500	0.04	2 3 7 9	25157	
ST300C16C0	1600	1290	650	55	6730	7040	3	200	2.18	1630	500	0.04	2 3 7 9	25157	
ST300C18C0	1800	1290	650	55	6730	7040	3	200	2.18	1630	500	0.04	2 3 7 9	25157	
ST300C20C0	2000	1290	650	55	6730	7040	3	200	2.18	1630	500	0.04	2 3 7 9	25157	
ST330C04C0	400	1420	720	55	7570	7920	3	200	1.96	1800	500	0.04	2 3 7 9	25155	
ST330C08C0	800	1420	720	55	7570	7920	3	200	1.96	1800	500	0.04	2 3 7 9	25155	
ST330C12C0	1200	1420	720	55	7570	7920	3	200	1.96	1800	500	0.04	2 3 7 9	25155	
ST330C14C0	1400	1420	720	55	7570	7920	3	200	1.96	1800	500	0.04	2 3 7 9	25155	
ST330C16C0	1600	1420	720	55	7570	7920	3	200	1.96	1800	500	0.04	2 3 7 9	25155	
ST380C04C0	400	1900	960	55	12600	13200	3	200	1.6	3000	500	0.04	2 3 7 9	25168	
ST380CH04C0	400	2220	960	80	10500	11000	3	200	1.58	2900	500	0.04	2 3 7 9 10	25169	
ST380CH06C0	600	2220	960	80	10500	11000	3	200	1.58	2900	500	0.04	2 3 7 9 10	25169	
ST380C06C0	600	1900	960	55	12600	13200	3	200	1.6	3000	500	0.04	2 3 7 9	25168	

### NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reappplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^\circ\text{C}$
- $V_{TM}$  @  $\pi$  X II(AV),  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 0.67 VDRM.  $T_J = 25^\circ\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dv/dt$  linear to 0.8 Vdrm;  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 100% VDRM;  $T_J = 125^\circ\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^\circ\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT



# Phase Control SCR

International  
TOR Rectifier

Part Number	$V_{RRM}$	$V_{DRM}$	$I_{T(RMS)}$	$I_{T(AV)}^{\text{①}}$	$T_C$	$I_{TSM}$		$V_{GT}$	$I_{GT}$	$V_{TM}^{\text{②}}$	$I_{TM}$	$dv/dt$	$R_{\theta J-HS}$	Notes	Fax-on-Demand	Outline
	(V)	(V)	(A)	(A)	(°C)	50 Hz	60 Hz	(V)	(mA)	(V)	(A)	(V/μs)	(°C/W)			

## Thyristors

TO-200AC (B-Puk)



ST300C04L0	400	1115	560	55	6730	7040	3	200	2.18	1635	500	0.05	2 3 7 9	25157	T14
ST300C08L0	800	1115	560	55	6730	7040	3	200	2.18	1635	500	0.05	2 3 7 9	25157	
ST300C12L0	1200	1115	560	55	6730	7040	3	200	2.18	1635	500	0.05	2 3 7 9	25157	
ST300C16L0	1600	1115	560	55	6730	7040	3	200	2.18	1635	500	0.05	2 3 7 9	25157	
ST300C18L0	1800	1115	560	55	6730	7040	3	200	2.18	1635	500	0.05	2 3 7 9	25157	
ST300C20L0	2000	1115	560	55	6730	7040	3	200	2.18	1635	500	0.05	2 3 7 9	25157	
ST330C04L0	400	1230	650	55	7570	7925	3	200	1.9	1730	500	0.05	2 3 7 9	25154	
ST330C08L0	800	1230	650	55	7570	7925	3	200	1.9	1730	500	0.05	2 3 7 9	25154	
ST330C12L0	1200	1230	650	55	7570	7925	3	200	1.9	1730	500	0.05	2 3 7 9	25154	
ST330C14L0	1400	1230	650	55	7570	7925	3	200	1.9	1730	500	0.05	2 3 7 9	25154	
ST330C16L0	1600	1230	650	55	7570	7925	3	200	1.9	1730	500	0.05	2 3 7 9	25154	
ST700C12L0	1200	1857	910	55	13200	13800	3	200	1.8	2000	500	0.031	2 3 7 9	25190	
ST700C16L0	1600	1857	910	55	13200	13800	3	200	1.8	2000	500	0.031	2 3 7 9	25190	
ST700C18L0	1800	1857	910	55	13200	13800	3	200	1.8	2000	500	0.031	2 3 7 9	25190	
ST700C20L0	2000	1857	910	55	13200	13800	3	200	1.8	2000	500	0.031	2 3 7 9	25190	
ST700C22L0	2200	1857	910	55	13200	13800	3	200	1.8	2000	500	0.031	2 3 7 9	25190	
ST730C08L0	800	2000	990	55	15000	15700	3	200	1.62	2000	500	0.031	2 3 7 9	25191	
ST730C12L0	1200	2000	990	55	15000	15700	3	200	1.62	2000	500	0.031	2 3 7 9	25191	
ST730C14L0	1400	2000	990	55	15000	15700	3	200	1.62	2000	500	0.031	2 3 7 9	25191	
ST730C16L0	1600	2000	990	55	15000	15700	3	200	1.62	2000	500	0.031	2 3 7 9	25191	
ST730C18L0	1800	2000	990	55	15000	15700	3	200	1.62	2000	500	0.031	2 3 7 9	25191	
ST780C04L0	400	2700	1350	55	20550	21500	3	200	1.31	3600	500	0.031	2 3 7 9	25192	
ST780C06L0	600	2700	1350	55	20550	21500	3	200	1.31	3600	500	0.031	2 3 7 9	25192	

### NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max} = 125^\circ\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^\circ\text{C}$
- $V_{TM}$  @  $p_i \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 0.67  $V_{DRM}$ .  $T_J = 25^\circ\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dv/dt$  linear to 0.8  $V_{DRM}$ ;  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 100%  $V_{DRM}$ ;  $T_J = 125^\circ\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^\circ\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-50

# Phase Control SCR

International  
IOR Rectifier

Part Number	$V_{RRM}$ $V_{DRM}$ (V)	$I_{T(RMS)}$ (A)	$I_{T(AV)}^T$ (A) $^T$ (°C)	$I_{TSM}$ 50 Hz 60 Hz (A)	$V_{GT}$ (V)	$I_{GT}$ (mA)	$V_{TM}$ (V)	$I_{TM}$ (A)	$dv/dt$ (V/μs)	$R_{\theta JC}$ (D) (°C/W)	Notes	Fax-on-Demand	Outline
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## Thyristors

A-24 (K-Puk)



ST1000C12K0	1200	2800	1470	55	17800	18100	3	200	1.8	3000	500	0.021	2 3 7 9 11	T15
ST1000C14K0	1400	2800	1470	55	17800	18100	3	200	1.8	3000	500	0.021	2 3 7 9 11	
ST1000C16K0	1600	2800	1470	55	17800	18100	3	200	1.8	3000	500	0.021	2 3 7 9 11	
ST1000C18K0	1800	2800	1470	55	17800	18100	3	200	1.8	3000	500	0.021	2 3 7 9 11	
ST1000C20K0	2000	2800	1470	55	17800	18100	3	200	1.8	3000	500	0.021	2 3 7 9 11	
ST1000C22K0	2200	2800	1470	55	17800	18100	3	200	1.8	3000	500	0.021	2 3 7 9 11	
ST1000C24K0	2400	2800	1470	55	17800	18100	3	200	1.8	3000	500	0.021	2 3 7 9 11	
ST1000C26K0	2600	2800	1470	55	17800	18100	3	200	1.8	3000	500	0.021	2 3 7 9 11	
ST1200C12K0	1200	3080	1650	55	25700	26900	3	200	1.73	4000	500	0.021	2 3 7 9 11	25196
ST1200C14K0	1400	3080	1650	55	25700	26900	3	200	1.73	4000	500	0.021	2 3 7 9 11	25196
ST1200C16K0	1600	3080	1650	55	25700	26900	3	200	1.73	4000	500	0.021	2 3 7 9 11	25196
ST1200C18K0	1800	3080	1650	55	25700	26900	3	200	1.73	4000	500	0.021	2 3 7 9 11	25196
ST1200C20K0	2000	3080	1650	55	25700	26900	3	200	1.73	4000	500	0.021	2 3 7 9 11	25196
ST1230C08K0	800	3200	1745	55	28000	29500	3	200	1.62	4000	500	0.021	2 3 7 9 11	25194
ST1230C12K0	1200	3200	1745	55	28000	29500	3	200	1.62	4000	500	0.021	2 3 7 9 11	25194
ST1230C14K0	1400	3200	1745	55	28000	29500	3	200	1.62	4000	500	0.021	2 3 7 9 11	25194
ST1230C16K0	1600	3200	1745	55	28000	29500	3	200	1.62	4000	500	0.021	2 3 7 9 11	25194
ST1280C04K0	400	4150	2310	55	35700	37400	3	200	1.44	8000	500	0.021	2 3 7 9 11	25195
ST1280C06K0	600	4150	2310	55	35700	37400	3	200	1.44	8000	500	0.021	2 3 7 9 11	25195

### NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^\circ\text{C}$
- $V_{TM}$  @  $\pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 0.67  $V_{DRM}$ .  $T_J = 25^\circ\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dv/dt$  linear to 0.8  $V_{DRM}$ ;  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 100%  $V_{DRM}$ ;  $T_J = 125^\circ\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^\circ\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT

# Phase Control SCR

International  
IOR Rectifier

Part Number	$V_{RRM}$	$V_{DRM}$	$I_{T(RMS)}$	$I_{T(AV)}$	$I_{T(C)}$	$I_{TSM}$	$V_{GT}$	$I_{GT}$	$V_{TM}$	$I_{TM}$	$dv/dt$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(V)	(A)	(A)	(°C)	50 Hz 60 Hz	(V)	(mA)	(V)	(A)	(V/μs)	(°C/W)			

## Thyristors

A-36 (R-Puk)



ST1900C45R0	4500	3500	1625	80	22000	23500	4	400	2.1	2900	500	0.012	2 3 7 11		T16
ST1900C46R0	4600	3500	1625	80	22000	23500	4	400	2.1	2900	500	0.012	2 3 7 11		
ST1900C48R0	4800	3500	1625	80	22000	23500	4	400	2.1	2900	500	0.012	2 3 7 11		
ST1900C50R0	5000	3500	1625	80	22000	23500	4	400	2.1	2900	500	0.012	2 3 7 11		
ST1900C52R0	5200	3500	1625	80	22000	23500	4	400	2.1	2900	500	0.012	2 3 7 11		
ST2100C35R0	3500	3850	1770	80	29000	30350	4	400	1.88	2900	500	0.012	2 3 7 11		
ST2100C36R0	3600	3850	1770	80	29000	30350	4	400	1.88	2900	500	0.012	2 3 7 11		
ST2100C38R0	3800	3850	1770	80	29000	30350	4	400	1.88	2900	500	0.012	2 3 7 11		
ST2100C40R0	4000	3850	1770	80	29000	30350	4	400	1.88	2900	500	0.012	2 3 7 11		
ST2100C42R0	4200	3850	1770	80	29000	30350	4	400	1.88	2900	500	0.012	2 3 7 11		
ST2600C20R0	2000	4800	2220	80	36800	38500	4	400	1.45	2900	500	0.012	2 3 7 11		
ST2600C22R0	2200	4800	2220	80	36800	38500	4	400	1.45	2900	500	0.012	2 3 7 11		
ST2600C24R0	2400	4800	2220	80	36800	38500	4	400	1.45	2900	500	0.012	2 3 7 11		
ST2600C26R0	2600	4800	2220	80	36800	38500	4	400	1.45	2900	500	0.012	2 3 7 11		
ST2600C28R0	2800	4800	2220	80	36800	38500	4	400	1.45	2900	500	0.012	2 3 7 11		
ST2600C30R0	3000	4800	2220	80	36800	38500	4	400	1.45	2900	500	0.012	2 3 7 11		
ST3230C10R0	1000	5950	2785	80	49000	51300	4	400	1.3	2900	500	0.012	2 3 7 11		
ST3230C12R0	1200	5950	2785	80	49000	51300	4	400	1.3	2900	500	0.012	2 3 7 11		
ST3230C14R0	1400	5950	2785	80	49000	51300	4	400	1.3	2900	500	0.012	2 3 7 11		
ST3230C16R0	1600	5950	2785	80	49000	51300	4	400	1.3	2900	500	0.012	2 3 7 11		
ST3230C18R0	1800	5950	2785	80	49000	51300	4	400	1.3	2900	500	0.012	2 3 7 11		

### NOTES

- Available on tape-and-reel. Refer to case outline.
- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max} = 125^\circ\text{C}$
- For  $I_{GT}$ ,  $V_{GT}$ :  $T_J = 25^\circ\text{C}$
- $V_{TM}$  @  $\pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 0.67  $V_{DRM}$ ,  $T_J = 25^\circ\text{C}$
- Available with metric stud. To order, add 'M' to part number, e.g. 10RIA10M.
- $dv/dt$  linear to 0.8  $V_{DRM}$ ,  $T_J = 125^\circ\text{C}$
- $dv/dt$  exponential to 100%  $V_{DRM}$ ,  $T_J = 125^\circ\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- Max  $T_J = 150^\circ\text{C}$
- Available with fast-on terminals. To order, change last '0' to '1' in part number, e.g. ST180S04P1V
- Available with fast-on terminals. To order, change first '0' to '1' in part number, e.g. 81RIA40
- Available with flag terminals. To order, change first '0' to '2' in part number, e.g. 82RIA40
- DC operation, double side cooled

INPUT

CONTROL

SWITCH

OUTPUT

# Phase Control SCR

International  
IOR Rectifier

Part Number	VRRM	$I_{T(AV)}$	$@T_C$	$V_{TM}$	$I_{TSM}$	$R_{\theta JC(DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	(V)	50 Hz (A) 60 Hz (A)	(K/W)			

## Thyristor Module

## T-MODULE



T50RIA10	100	50	70	1.6	1100	1150	0.65	2 4 22	87105	M3
T50RIA20	200	50	70	1.6	1100	1150	0.65	2 4 22	87105	
T50RIA40	400	50	70	1.6	1100	1150	0.65	2 4 22	87105	
T50RIA60	600	50	70	1.6	1100	1150	0.65	2 4 22	87105	
T50RIA80	800	50	70	1.6	1100	1150	0.65	2 4 22	87105	
T50RIA100	1000	50	70	1.6	1100	1150	0.65	2 4 22	87105	
T50RIA120	1200	50	70	1.6	1100	1150	0.65	2 4 22	87105	
T70RIA10	100	70	70	1.55	1400	1460	0.5	2 4 22	87105	
T70RIA20	200	70	70	1.55	1400	1460	0.5	2 4 22	87105	
T70RIA40	400	70	70	1.55	1400	1460	0.5	2 4 22	87105	
T70RIA60	600	70	70	1.55	1400	1460	0.5	2 4 22	87105	
T70RIA80	800	70	70	1.55	1400	1460	0.5	2 4 22	87105	
T70RIA100	1000	70	70	1.55	1400	1460	0.5	2 4 22	87105	
T70RIA120	1200	70	70	1.55	1400	1460	0.5	2 4 22	87105	
T90RIA10	100	90	70	1.55	1500	1570	0.38	2 4 22	87105	
T90RIA20	200	90	70	1.55	1500	1570	0.38	2 4 22	87105	
T90RIA40	400	90	70	1.55	1500	1570	0.38	2 4 22	87105	
T90RIA60	600	90	70	1.55	1500	1570	0.38	2 4 22	87105	
T90RIA80	800	90	70	1.55	1500	1570	0.38	2 4 22	87105	
T90RIA100	1000	90	70	1.55	1500	1570	0.38	2 4 22	87105	
T90RIA120	1200	90	70	1.55	1500	1570	0.38	2 4 22	87105	

### NOTES:

- 2 For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- 4  $V_{TM}$  @  $\pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- 15  $dv/dt$  exponential to 0.67;  $T_J = 125^\circ\text{C}$
- 16 Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

- 17 Available without auxiliary cathode. Refer to case outline for details.
- 18 Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.
- 19 Available with spacers and longer terminal screws. Refer to case outline for details.

- 20 RMS isolation voltage = 3000V - 50Hz
- 21 RMS isolation voltage = 2500V - 50Hz
- 22 Value given for  $R_{\theta JC}$  is per module.
- 24 RMS isolation voltage = 4000V - 50Hz
- 25 RMS isolation voltage = 3500 - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT



# Phase Control SCR

International  
IOR Rectifier

Part Number	VRRM	$I_{T(AV)}$ @ $T_C$		$I_{TSM}$		$R_{\theta JC(DC)}$	Notes	Fax-on-Demand	Outline
	VDRM (V)	(A)	(°C)	50 Hz (A)	60 Hz (A)	(K/W)			

## Thyristor / Thyristor Module

ADD-A-Pak



IRKT26/04	400	27	85	335	350	0.31	2 16 17 22 25	27130	M4
IRKT26/06	600	27	85	335	350	0.31	2 16 17 22 25	27130	
IRKT26/08	800	27	85	335	350	0.31	2 16 17 22 25	27130	
IRKT26/10	1000	27	85	335	350	0.31	2 16 17 22 25	27130	
IRKT26/12	1200	27	85	335	350	0.31	2 16 17 22 25	27130	
IRKT26/14	1400	27	85	335	350	0.31	2 16 17 22 25	27130	
IRKT26/16	1600	27	85	335	350	0.31	2 16 17 22 25	27130	
IRKT41/04	400	45	85	715	750	0.23	2 16 17 18 22 25	27131	
IRKT41/06	600	45	85	715	750	0.23	2 16 17 18 22 25	27131	
IRKT41/08	800	45	85	715	750	0.23	2 16 17 18 22 25	27131	
IRKT41/10	1000	45	85	715	750	0.23	2 16 17 18 22 25	27131	
IRKT41/12	1200	45	85	715	750	0.23	2 16 17 18 22 25	27131	
IRKT41/14	1400	45	85	715	750	0.23	2 16 17 18 22 25	27131	
IRKT41/16	1600	45	85	715	750	0.23	2 16 17 18 22 25	27131	
IRKT56/04	400	60	85	1100	1150	0.2	2 16 17 18 22 25	27131	
IRKT56/06	600	60	85	1100	1150	0.2	2 16 17 18 22 25	27131	
IRKT56/08	800	60	85	1100	1150	0.2	2 16 17 18 22 25	27131	
IRKT56/10	1000	60	85	1100	1150	0.2	2 16 17 18 22 25	27131	
IRKT56/12	1200	60	85	1100	1150	0.2	2 16 17 18 22 25	27131	
IRKT56/14	1400	60	85	1100	1150	0.2	2 16 17 18 22 25	27131	
IRKT56/16	1600	60	85	1100	1150	0.2	2 16 17 18 22 25	27131	
IRKT71/04	400	75	85	1400	1470	0.165	2 16 17 18 22 25	27132	
IRKT71/06	600	75	85	1400	1470	0.165	2 16 17 18 22 25	27132	
IRKT71/08	800	75	85	1400	1470	0.165	2 16 17 18 22 25	27132	
IRKT71/10	1000	75	85	1400	1470	0.165	2 16 17 18 22 25	27132	
IRKT71/12	1200	75	85	1400	1470	0.165	2 16 17 18 22 25	27132	
IRKT71/14	1400	75	85	1400	1470	0.165	2 16 17 18 22 25	27132	
IRKT71/16	1600	75	85	1400	1470	0.165	2 16 17 18 22 25	27132	
IRKT91/04	400	95	85	1500	1570	0.135	2 16 17 18 22 25	27132	
IRKT91/06	600	95	85	1500	1570	0.135	2 16 17 18 22 25	27132	

### NOTES:

2 For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$

4  $V_{TM}$  @  $\pi$  X II(AV),  $T_J = 125^\circ\text{C}$

15  $dv/dt$  exponential to 0.67;  $T_J = 125^\circ\text{C}$

16 Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

17 Available without auxiliary cathode. Refer to case outline for details.

18 Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.

19 Available with spacers and longer terminal screws. Refer to case outline for details.

20 RMS isolation voltage = 3000V - 50Hz

21 RMS isolation voltage = 2500V - 50Hz

22 Value given for  $R_{\theta JC}$  is per module.

24 RMS isolation voltage = 4000V - 50Hz

25 RMS isolation voltage = 3500 - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

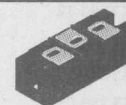
# Phase Control SCR

International  
IOR Rectifier

Part Number	VRRM	$I_{T(AV)}$ @ $T_C$		$I_{TSM}$		$R_{\theta JC(DC)}$	Notes	Fax-on-Demand	Outline
	VDRM (V)	(A)	(°C)	50 Hz (A)	60 Hz (A)				
IRKT91/08	800	95	85	1500	1570	0.135	2 16 17 18 22 25	27132	M4
IRKT91/10	1000	95	85	1500	1570	0.135	2 16 17 18 22 25	27132	
IRKT91/12	1200	95	85	1500	1570	0.135	2 16 17 18 22 25	27132	
IRKT91/14	1400	95	85	1500	1570	0.135	2 16 17 18 22 25	27132	
IRKT91/16	1600	95	85	1500	1570	0.135	2 16 17 18 22 25	27132	
IRKT105/04	400	105	85	1500	1570	0.135	2 16 17 18 22 25	27133	
IRKT105/06	600	105	85	1500	1570	0.135	2 16 17 18 22 25	27133	
IRKT105/08	800	105	85	1500	1570	0.135	2 16 17 18 22 25	27133	
IRKT105/10	1000	105	85	1500	1570	0.135	2 16 17 18 22 25	27133	
IRKT105/12	1200	105	85	1500	1570	0.135	2 16 17 18 22 25	27133	
IRKT105/14	1400	105	85	1500	1570	0.135	2 16 17 18 22 25	27133	
IRKT105/16	1600	105	85	1500	1570	0.135	2 16 17 18 22 25	27133	

## Thyristor / Thyristor Module

INT-A-Pak



IRKT136-04	400	135	85	2700	2800	0.1	2 18 19 20 22	87101	M5
IRKT136-08	800	135	85	2700	2800	0.1	2 18 19 20 22	87101	
IRKT136-12	1200	135	85	2700	2800	0.1	2 18 19 20 22	87101	
IRKT136-14	1400	135	85	2700	2800	0.1	2 18 19 20 22	87101	
IRKT136-16	1600	135	85	2700	2800	0.1	2 18 19 20 22	87101	
IRKT142-08	800	140	85	4000	4200	0.085	2 18 19 20 22	87101	
IRKT142-12	1200	140	85	4000	4200	0.085	2 18 19 20 22	87101	
IRKT142-16	1600	140	85	4000	4200	0.085	2 18 19 20 22	87101	
IRKT142-18	1800	140	85	4000	4200	0.085	2 18 19 20 22	87101	
IRKT142-20	2000	140	85	4000	4200	0.085	2 18 19 20 22	87101	
IRKT162-04	400	160	85	4300	4500	0.085	2 18 19 20 22	87101	
IRKT162-08	800	160	85	4300	4500	0.085	2 18 19 20 22	87101	
IRKT162-12	1200	160	85	4300	4500	0.085	2 18 19 20 22	87101	
IRKT162-14	1400	160	85	4300	4500	0.085	2 18 19 20 22	87101	
IRKT162-16	1600	160	85	4300	4500	0.085	2 18 19 20 22	87101	

### NOTES:

2 For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$

4  $V_{TM} @ \pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$

15  $dv/dt$  exponential to 0.67;  $T_J = 125^\circ\text{C}$

16 Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

17 Available without auxiliary cathode. Refer to case outline for details.

18 Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.

19 Available with spacers and longer terminal screws. Refer to case outline for details.

20 RMS isolation voltage = 3000V - 50Hz

21 RMS isolation voltage = 2500V - 50Hz

22 Value given for  $R_{\theta JC}$  is per module.

24 RMS isolation voltage = 4000V - 50Hz

25 RMS isolation voltage = 3500V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

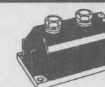
# Phase Control SCR

International  
**IOR** Rectifier

Part Number	VRRM	$I_{T(AV)}$ @ $T_C$		$I_{TSM}$		$R_{\theta JC(DC)}$ (K/W)	Notes	Fax-on-Demand	Outline
	VDRM			50 Hz	60 Hz				
	(V)	(A)	(°C)	(A)	(A)				

## Thyristor / Thyristor Module

MAGN-A-Pak



IRKT170-04	400	170	85	4300	4500	0.085	2 18 20 22	87102	M6
IRKT170-08	800	170	85	4300	4500	0.085	2 18 20 22	87102	
IRKT170-12	1200	170	85	4300	4500	0.085	2 18 20 22	87102	
IRKT170-14	1400	170	85	4300	4500	0.085	2 18 20 22	87102	
IRKT170-16	1600	170	85	4300	4500	0.085	2 18 20 22	87102	
IRKT230-08	800	230	85	6300	6600	0.063	2 18 20 22	87102	
IRKT230-12	1200	230	85	6300	6600	0.063	2 18 20 22	87102	
IRKT230-16	1600	230	85	6300	6600	0.063	2 18 20 22	87102	
IRKT230-18	1800	230	85	6300	6600	0.063	2 18 20 22	87102	
IRKT230-20	2000	230	85	6300	6600	0.063	2 18 20 22	87102	
IRKT250-04	400	250	85	7150	7500	0.063	2 18 20 22	87102	
IRKT250-08	800	250	85	7150	7500	0.063	2 18 20 22	87102	
IRKT250-12	1200	250	85	7150	7500	0.063	2 18 20 22	87102	
IRKT250-14	1400	250	85	7150	7500	0.063	2 18 20 22	87102	
IRKT250-16	1600	250	85	7150	7500	0.063	2 18 20 22	87102	

## Thyristor / Thyristor Module

Super MAGN-A-Pak



IRKT430-16	1600	430	82	13200	13800	0.032	2 20 22		M7
IRKT430-18	1800	430	82	13200	13800	0.032	2 20 22		
IRKT430-20	2000	430	82	13200	13800	0.032	2 20 22		
IRKT500-08	800	500	82	15000	15700	0.032	2 20 22		
IRKT500-12	1200	500	82	15000	15700	0.032	2 20 22		
IRKT500-14	1400	500	82	15000	15700	0.032	2 20 22		
IRKT500-16	1600	500	82	15000	15700	0.032	2 20 22		

### NOTES:

- 2 For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- 4  $V_{TM}$  @  $\pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- 15  $dv/dt$  exponential to 0.67;  $T_J = 125^\circ\text{C}$
- 16 Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

- 17 Available without auxiliary cathode. Refer to case outline for details.
- 18 Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.
- 19 Available with spacers and longer terminal screws. Refer to case outline for details.

- 20 RMS isolation voltage = 3000V - 50Hz
- 21 RMS isolation voltage = 2500V - 50Hz
- 22 Value given for  $R_{\theta JC}$  is per module.
- 24 RMS isolation voltage = 4000V - 50Hz
- 25 RMS isolation voltage = 3500 - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-56

# Phase Control SCR

International  
IOR Rectifier

Part Number Doubler Circuit Positive Control	Part Number Doubler Circuit Negative Control	Voltage Range		$I_{T(AV)}$ (A)	$@T_C$ (°C)	$I_{TSM}$		$R_{\theta JC(DC)}$ (K/W)	Notes	Fax-on- Demand	Outline
		Thyristor (V)	Diode (V)			50 Hz (A)	60 Hz (A)				

## Thyristor / Diode

## ADD-A-Pak



IRKH26/04	IRKL26/04	400	27	85	335	350	0.31	2	16 17 22 25	27130	M4
IRKH26/06	IRKL26/06	600	27	85	335	350	0.31	2	16 17 22 25	27130	
IRKH26/08	IRKL26/08	800	27	85	335	350	0.31	2	16 17 22 25	27130	
IRKH26/10	IRKL26/10	1000	27	85	335	350	0.31	2	16 17 22 25	27130	
IRKH26/12	IRKL26/12	1200	27	85	335	350	0.31	2	16 17 22 25	27130	
IRKH26/14	IRKL26/14	1400	27	85	335	350	0.31	2	16 17 22 25	27130	
IRKH26/16	IRKL26/16	1600	27	85	335	350	0.31	2	16 17 22 25	27130	
IRKH41/04	IRKL41/04	400	45	85	715	750	0.23	2	16 17 22 25	27131	
IRKH41/06	IRKL41/06	600	45	85	715	750	0.23	2	16 17 22 25	27131	
IRKH41/08	IRKL41/08	800	45	85	715	750	0.23	2	16 17 22 25	27131	
IRKH41/10	IRKL41/10	1000	45	85	715	750	0.23	2	16 17 22 25	27131	
IRKH41/12	IRKL41/12	1200	45	85	715	750	0.23	2	16 17 22 25	27131	
IRKH41/14	IRKL41/14	1400	45	85	715	750	0.23	2	16 17 22 25	27131	
IRKH41/16	IRKL41/16	1600	45	85	715	750	0.23	2	16 17 22 25	27131	
IRKH56/04	IRKL56/04	400	60	85	1100	1150	0.2	2	16 17 22 25	27131	
IRKH56/06	IRKL56/06	600	60	85	1100	1150	0.2	2	16 17 22 25	27131	
IRKH56/08	IRKL56/08	800	60	85	1100	1150	0.2	2	16 17 22 25	27131	
IRKH56/10	IRKL56/10	1000	60	85	1100	1150	0.2	2	16 17 22 25	27131	
IRKH56/12	IRKL56/12	1200	60	85	1100	1150	0.2	2	16 17 22 25	27131	
IRKH56/14	IRKL56/14	1400	60	85	1100	1150	0.2	2	16 17 22 25	27131	
IRKH56/16	IRKL56/16	1600	60	85	1100	1150	0.2	2	16 17 22	27131	
IRKH71/04	IRKL71/04	400	75	85	1400	1470	0.165	2	16 17 22	27132	
IRKH71/06	IRKL71/06	600	75	85	1400	1470	0.165	2	16 17 22	27132	
IRKH71/08	IRKL71/08	800	75	85	1400	1470	0.165	2	16 17 22	27132	
IRKH71/10	IRKL71/10	1000	75	85	1400	1470	0.165	2	16 17 22	27132	
IRKH71/12	IRKL71/12	1200	75	85	1400	1470	0.165	2	16 17 22	27132	
IRKH71/14	IRKL71/14	1400	75	85	1400	1470	0.165	2	16 17 22	27132	
IRKH71/16	IRKL71/16	1600	75	85	1400	1470	0.165	2	16 17 22	27132	
IRKH91/04	IRKL91/04	400	95	85	1500	1570	0.135	2	16 17 22	27132	
IRKH91/06	IRKL91/06	600	95	85	1500	1570	0.135	2	16 17 22	27132	

### NOTES:

- 2 For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- 4  $V_{tm} @ \pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- 15  $dv/dt$  exponential to 0.67;  $T_J = 125^\circ\text{C}$
- 16 Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

- 17 Available without auxiliary cathode. Refer to case outline for details.

- 18 Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.

- 19 Available with spacers and longer terminal screws. Refer to case outline for details.

- 20 RMS isolation voltage = 3000V - 50Hz
- 21 RMS isolation voltage = 2500V - 50Hz
- 22 Value given for  $R_{\theta JC}$  is per module.
- 24 RMS isolation voltage = 4000V - 50Hz
- 25 RMS isolation voltage = 3500 - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT



# Phase Control SCR

International  
IOR Rectifier

Part Number Doubler Circuit Positive Control	Part Number Doubler Circuit Negative Control	Voltage Range		$I_{T(AV)}$ (A)	$@T_C$ (°C)	$I_{TSM}$		$R_{\theta JC(DC)}$ (K/W)	Notes	Fax-on- Demand	Outline
		Thyristor (V)	Diode (V)			50 Hz (A)	60 Hz (A)				
IRKH91/08	IRKL91/08	800		95	85	1500	1570	0.135	2 16 17 22	27132	M4
IRKH91/10	IRKL91/10	1000		95	85	1500	1570	0.135	2 16 17 22	27132	
IRKH91/12	IRKL91/12	1200		95	85	1500	1570	0.135	2 16 17 22	27132	
IRKH91/14	IRKL91/14	1400		95	85	1500	1570	0.135	2 16 17 22	27132	
IRKH91/16	IRKL91/16	1600		95	85	1500	1570	0.135	2 16 17 22	27132	
IRKH105/16	IRKL105/16	1600		95	85	1500	1570	0.135	2 16 17 22	27133	
IRKH105/04	IRKL105/04	400		105	85	1500	1570	0.135	2 16 17 22	27133	
IRKH105/06	IRKL105/06	600		105	85	1500	1570	0.135	2 16 17 22	27133	
IRKH105/08	IRKL105/08	800		105	85	1500	1570	0.135	2 16 17 22	27133	
IRKH105/10	IRKL105/10	1000		105	85	1500	1570	0.135	2 16 17 22	27133	
IRKH105/12	IRKL105/12	1200		105	85	1500	1570	0.135	2 16 17 22	27133	
IRKH105/14	IRKL105/14	1400		105	85	1500	1570	0.135	2 16 17 22	27133	

## Thyristor / High Voltage Diode

INT-A-Pak



IRKH136-04	IRKL136-04	400		135	85	2700	2800	0.1	2 19 20 22	87101	M5
IRKH136-08	IRKL136-08	800		135	85	2700	2800	0.1	2 19 20 22	87101	
IRKH136-12	IRKL136-12	1200		135	85	2700	2800	0.1	2 19 20 22	87101	
IRKH136-14	IRKL136-14	1400		135	85	2700	2800	0.1	2 19 20 22	87101	
IRKH136-16	IRKL136-16	1600		135	85	2700	2800	0.1	2 19 20 22	87101	
IRKH142-08	IRKL142-08	800		140	85	4000	4200	0.085	2 19 20 22	87101	
IRKH142-12	IRKL142-12	1200		140	85	4000	4200	0.085	2 19 20 22	87101	
IRKH142-16	IRKL142-16	1600		140	85	4000	4200	0.085	2 19 20 22	87101	
IRKH142-18	IRKL142-18	1800		140	85	4000	4200	0.085	2 19 20 22	87101	
IRKH142-20	IRKL142-20	2000		140	85	4000	4200	0.085	2 19 20 22	87101	
IRKH162-04	IRKL162-04	400		160	85	4300	4500	0.085	2 19 20 22	87101	
IRKH162-08	IRKL162-08	800		160	85	4300	4500	0.085	2 19 20 22	87101	
IRKH162-12	IRKL162-12	1200		160	85	4300	4500	0.085	2 19 20 22	87101	
IRKH162-14	IRKL162-14	1400		160	85	4300	4500	0.085	2 19 20 22	87101	
IRKH162-16	IRKL162-16	1600		160	85	4300	4500	0.085	2 19 20 22	87101	

### NOTES:

2 For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$

4  $V_{TM} @ \pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$

15  $dv/dt$  exponential to 0.67;  $T_J = 125^\circ\text{C}$

16 Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

17 Available without auxiliary cathode. Refer to case outline for details.

18 Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.

19 Available with spacers and longer terminal screws. Refer to case outline for details.

20 RMS isolation voltage = 3000V - 50Hz

21 RMS isolation voltage = 2500V - 50Hz

22 Value given for  $R_{\theta JC}$  is per module.

24 RMS isolation voltage = 4000V - 50Hz

25 RMS isolation voltage = 3500 - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-58

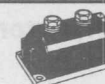
# Phase Control SCR

International  
TOR Rectifier

Part Number Doubler Circuit Positive Control	Part Number Doubler Circuit Negative Control	Voltage Range		$I_{T(AV)}$ @ $T_C$		$I_{TSM}$		$R_{\theta JC(DC)}$ (K/W)	Notes	Fax-on-	
		Thyristor (V)	Diode (V)	(A)	(°C)	50 Hz (A)	60 Hz (A)			Demand	Outline

## Thyristor / High Voltage Diode

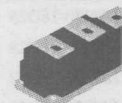
MAGN-A-Pak



IRKH170-04	IRKL170-04	400	170	85	4300	4500	0.085	2	20 22	87102	M6
IRKH170-08	IRKL170-08	800	170	85	4300	4500	0.085	2	20 22	87102	
IRKH170-12	IRKL170-12	1200	170	85	4300	4500	0.085	2	20 22	87102	
IRKH170-14	IRKL170-14	1400	170	85	4300	4500	0.085	2	20 22	87102	
IRKH170-16	IRKL170-16	1600	170	85	4300	4500	0.085	2	20 22	87102	
IRKH230-08	IRKL230-08	800	230	85	6300	6600	0.063	2	20 22	87102	
IRKH230-12	IRKL230-12	1200	230	85	6300	6600	0.063	2	20 22	87102	
IRKH230-16	IRKL230-16	1600	230	85	6300	6600	0.063	2	20 22	87102	
IRKH230-18	IRKL230-18	1800	230	85	6300	6600	0.063	2	20 22	87102	
IRKH230-20	IRKL230-20	2000	230	85	6300	6600	0.063	2	20 22	87102	
IRKH250-04	IRKL250-04	400	250	85	7150	7500	0.063	2	20 22	87102	
IRKH250-08	IRKL250-08	800	250	85	7150	7500	0.063	2	20 22	87102	
IRKH250-12	IRKL250-12	1200	250	85	7150	7500	0.063	2	20 22	87102	
IRKH250-14	IRKL250-14	1400	250	85	7150	7500	0.063	2	20 22	87102	
IRKH250-16	IRKL250-16	1600	250	85	7150	7500	0.063	2	20 22	87102	

## Thyristor / High Voltage Diode

Super MAGN-A-Pak



IRKH430-16	IRKL430-16	1600	430	82	13200	13800	0.032	2	20 22		M7
IRKH430-18	IRKL430-18	1800	430	82	13200	13800	0.032	2	20 22		
IRKH430-20	IRKL430-20	2000	430	82	13200	13800	0.032	2	20 22		
IRKH500-08	IRKL500-08	800	500	82	15000	15700	0.032	2	20 22		
IRKH500-12	IRKL500-12	1200	500	82	15000	15700	0.032	2	20 22		
IRKH500-14	IRKL500-14	1400	500	82	15000	15700	0.032	2	20 22		
IRKH500-16	IRKL500-16	1600	500	82	15000	15700	0.032	2	20 22		

### NOTES:

2 For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$

4  $V_{tm} @ \pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$

15  $dv/dt$  exponential to 0.67;  $T_J = 125^\circ\text{C}$

16 Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

17 Available without auxiliary cathode. Refer to case outline for details.

18 Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.

19 Available with spacers and longer terminal screws. Refer to case outline for details.

20 RMS isolation voltage = 3000V - 50Hz

21 RMS isolation voltage = 2500V - 50Hz

22 Value given for  $R_{thJC}$  is per module.

24 RMS isolation voltage = 4000V - 50Hz

25 RMS isolation voltage = 3500 - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-59

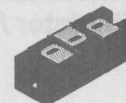
# Phase Control SCR

International  
IOR Rectifier

Part Number Doubler Circuit Positive Control	Part Number Doubler Circuit Negative Control	Voltage Range		$I_{T(AV)}$ (A)	$\theta_{T_C}$ (°C)	$I_{TSM}$		$R_{\theta JC(DC)}$ (K/W)	Notes	Fax-on- Demand	Outline
		Thyristor (V)	Diode (V)			50 Hz (A)	60 Hz (A)				

## Thyristor / High Voltage Diode

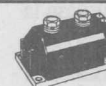
INT-A-Pak



IRKH136-14D20	IRKL136-14D2	1400	2000	135	85	2700	2800	0.1	2 19 20 22	87101	M5
IRKH136-16D25	IRKL136-16D2	1600	2500	135	85	2700	2800	0.1	2 19 20 22	87101	
IRKH142-14D20	IRKL142-14D2	1400	2000	140	85	4000	4200	0.085	2 19 20 22	87101	
IRKH142-16D25	IRKL142-16D2	1600	2500	140	85	4000	4200	0.085	2 19 20 22	87101	
IRKH142-18D28	IRKL142-18D2	1800	2800	140	85	4000	4200	0.085	2 19 20 22	87101	
IRKH142-20D32	IRKL142-20D3	2000	3200	140	85	4000	4200	0.085	2 19 20 22	87101	

## Thyristor / High Voltage Diode

MAGN-A-Pak



IRKH162-14D20	IRKL162-14D2	1400	2000	160	85	4300	4500	0.085	2 20 22	87101	M6
IRKH162-16D25	IRKL162-16D2	1600	2500	160	85	4300	4500	0.085	2 20 22	87101	
IRKH170-14D20	IRKL170-14D2	1400	2000	170	85	4300	4500	0.085	2 20 22	87102	
IRKH170-16D25	IRKL170-16D2	1600	2500	170	85	4300	4500	0.085	2 20 22	87102	
IRKH230-14D20	IRKL230-14D2	1400	2000	230	85	6300	6600	0.063	2 20 22	87102	
IRKH230-16D25	IRKL230-16D2	1600	2500	230	85	6300	6600	0.063	2 20 22	87102	
IRKH230-18D28	IRKL230-18D2	1800	2800	230	85	6300	6600	0.063	2 20 22	87102	
IRKH230-20D32	IRKL230-20D3	2000	3200	230	85	6300	6600	0.063	2 20 22	87102	
IRKH250-14D20	IRKL250-14D2	1400	2000	250	85	7150	7500	0.063	2 20 22	87102	
IRKH250-16D25	IRKL250-16D2	1600	2500	250	85	7150	7500	0.063	2 20 22	87102	

### NOTES:

- 2 For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- 4  $V_{tm} @ \pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$
- 15  $dv/dt$  exponential to 0.67;  $T_J = 125^\circ\text{C}$
- 16 Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

- 17 Available without auxiliary cathode. Refer to case outline for details.
- 18 Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.
- 19 Available with spacers and longer terminal screws. Refer to case outline for details.

- 20 RMS isolation voltage = 3000V - 50Hz
- 21 RMS isolation voltage = 2500V - 50Hz
- 22 Value given for  $R_{thJC}$  is per module.
- 24 RMS isolation voltage = 4000V - 50Hz
- 25 RMS isolation voltage = 3500 - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-60

# Phase Control SCR

International  
IOR Rectifier

Part Number	w/ free-wheeling diode	w/ free-wheeling diode & voltage suppression	VRRM	VDRM	$I_O$	$\theta_{TC}$	$I_{TSM}$	$P_{\theta JC(DC)}$	Notes	Fax-on-Demand	Outline
			(V)	(V)	(A)	(°C)	50 Hz 60 Hz	(K/W)			
							(A) (A) (A)				

## Single Phase Controlled Bridge

PACE-Pak



P104	P104W	P104KW	100	25	85	12.5	300	315	0.56	2	21	22	ckt	M1
P124			100	25	85	12.5	300	315	0.56	2	21	22	ckt	
P134			100	25	85	12.5	300	315	0.56	2	21	22	ckt	
P101	P101W	P101KW	400	25	85	12.5	300	315	0.56	2	21	22	ckt	
P131			400	25	85	12.5	300	315	0.56	2	21	22	ckt	
P121			400	25	85	12.5	300	315	0.56	2	21	22	ckt	
P122			600	25	85	12.5	300	315	0.56	2	21	22	ckt	
P132			600	25	85	12.5	300	315	0.56	2	21	22	ckt	
P102	P102W	P102KW	600	25	85	12.5	300	315	0.56	2	21	22	ckt	
P133			800	25	85	12.5	300	315	0.56	2	21	22	ckt	
P123			800	25	85	12.5	300	315	0.56	2	21	22	ckt	
P103	P103W	P103KW	800	25	85	12.5	300	315	0.56	2	21	22	ckt	
P135			1200	25	85	12.5	300	315	0.56	2	21	22	ckt	
P105	P105W	P105KW	1200	25	85	12.5	300	315	0.56	2	21	22	ckt	
P125			1200	25	85	12.5	300	315	0.56	2	21	22	ckt	
P424			100	40	85	20	325	340	0.263	2	21	22	ckt	
P434			100	40	85	20	325	340	0.263	2	21	22	ckt	
P404	P404W	P404KW	100	40	85	20	325	340	0.263	2	21	22	ckt	
P431			400	40	85	20	325	340	0.263	2	21	22	ckt	
P421			400	40	85	20	325	340	0.263	2	21	22	ckt	
P401	P401W	P401KW	400	40	85	20	325	340	0.263	2	21	22	ckt	
P422			600	40	85	20	325	340	0.263	2	21	22	ckt	
P432			600	40	85	20	325	340	0.263	2	21	22	ckt	
P402	P402W	P402KW	600	40	85	20	325	340	0.263	2	21	22	ckt	
P423			800	40	85	20	325	340	0.263	2	21	22	ckt	
P403	P403W	P403KW	800	40	85	20	325	340	0.263	2	21	22	ckt	
P433			800	40	85	20	325	340	0.263	2	21	22	ckt	
P405	P405W	P405KW	1200	40	85	20	325	340	0.263	2	21	22	ckt	
P425			1200	40	85	20	325	340	0.263	2	21	22	ckt	
P435			1200	40	85	20	325	340	0.263	2	21	22	ckt	

### NOTES:

- For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- Vtm @  $\pi$  X II(AV),  $T_J = 125^\circ\text{C}$
- dv/dt exponential to 0.67;  $T_J = 125^\circ\text{C}$
- Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

- Available without auxiliary cathode. Refer to case outline for details.
- Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.
- Available with spacers and longer terminal screws. Refer to case outline for details.

- RMS isolation voltage = 3000V - 50Hz
- RMS isolation voltage = 2500V - 50Hz
- Value given for  $R_{thJC}$  is per module.
- RMS isolation voltage = 4000V - 50Hz
- RMS isolation voltage = 3500 - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT



# Phase Control SCR

International  
IOR Rectifier

Part Number	VRRM	VDRM	$I_{T(RM)}$	$\theta_{TC}$	$V_{TM}$	$\theta_{ITM}$	$I_{TSM}$	$R_{\theta JC(DC)}$	Notes	Fax-on-Demand	Outline
	(V)	(V)	(A)	(°C)	(V)	(A)	50 Hz (A) 60 Hz (A)	(K/W)			

## AC Controllers

INT-A-Pak

### 3-Phase (3 back-to-back SCRs)



54MT80K	800	50	80	2.68	150	330	345	0.187	2	21	24	87114	B13
54MT100K	1000	50	80	2.68	150	330	345	0.187	2	21	24	87114	
54MT120K	1200	50	80	2.68	150	330	345	0.187	2	21	24	87114	
54MT140K	1400	50	80	2.68	150	330	345	0.187	2	21	24	87114	
54MT160K	1600	50	80	2.68	150	330	345	0.187	2	21	24	87114	
94MT80K	800	90	80	1.55	150	800	840	0.137	2	21	24	87114	
94MT100K	1000	90	80	1.55	150	800	840	0.137	2	21	24	87114	
94MT120K	1200	90	80	1.55	150	800	840	0.137	2	21	24	87114	
94MT140K	1400	90	80	1.55	150	800	840	0.137	2	21	24	87114	
94MT160K	1600	90	80	1.55	150	800	840	0.137	2	21	24	87114	
104MT80K	800	100	80	1.53	150	950	1000	0.119	2	21	24	87114	
104MT100K	1000	100	80	1.53	150	950	1000	0.119	2	21	24	87114	
104MT120K	1200	100	80	1.53	150	950	1000	0.119	2	21	24	87114	
104MT140K	1400	100	80	1.53	150	950	1000	0.119	2	21	24	87114	
104MT160K	1600	100	80	1.53	150	950	1000	0.119	2	21	24	87114	

#### NOTES:

2 For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$

4  $V_{TM}$  @  $\pi \times I_{T(AV)}$ ,  $T_J = 125^\circ\text{C}$

15  $dv/dt$  exponential to 0.67;  $T_J = 125^\circ\text{C}$

16 Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

17 Available without auxiliary cathode. Refer to case outline for details.

18 Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.

19 Available with spacers and longer terminal screws. Refer to case outline for details.

20 RMS isolation voltage = 3000V - 50Hz

21 RMS isolation voltage = 2500V - 50Hz

22 Value given for  $R_{\theta JC}$  is per module.

24 RMS isolation voltage = 4000V - 50Hz

25 RMS isolation voltage = 3500 - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

Input Products Page D-62

# Phase Control SCR

International  
**IOR** Rectifier

3-Phase Positive Controlled Bridge	3-Phase Negative Controlled Bridge	3-Phase Fully Controlled Bridge	VRRM VDRM (V)	$I_O(DC)$ (A)	$@T_C$ (°C)	$V_{TM}$ (V)	$I_{TSM}$ 50 Hz 60 Hz (A)	$R_{\theta JC(DC)}$ (K/W)	Notes	Fax-on- Demand	Outline
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## 3-Phase Controlled Bridges

INT-A-Pak



52MT80K	51MT80K	53MT80K	800	55	85	2.68	330	345	0.179	2	22	24	87113	B13
52MT100K	51MT100K	53MT100K	1000	55	85	2.68	330	345	0.179	2	22	24	87113	
52MT120K	51MT120K	53MT120K	1200	55	85	2.68	330	345	0.179	2	22	24	87113	
52MT140K	51MT140K	53MT140K	1400	55	85	2.68	330	345	0.179	2	22	24	87113	
52MT160K	51MT160K	53MT160K	1600	55	85	2.68	330	345	0.179	2	22	24	87113	
92MT80K	91MT80K	93MT80K	800	90	85	1.65	800	840	0.144	2	22	24	87113	
92MT100K	91MT100K	93MT100K	1000	90	85	1.65	800	840	0.144	2	22	24	87113	
92MT120K	91MT120K	93MT120K	1200	90	85	1.65	800	840	0.144	2	22	24	87113	
92MT140K	91MT140K	93MT140K	1400	90	85	1.65	800	840	0.144	2	22	24	87113	
92MT160K	92MT160K	93MT160K	1600	90	85	1.65	800	840	0.144	2	22	24	87113	
112MT80K	111MT80K	113MT80K	800	110	95	1.57	950	1000	0.117	2	22	24	87113	
112MT100K	111MT100K	113MT100	1000	110	95	1.57	950	1000	0.117	2	22	24	87113	
112MT120K	111MT120K	113MT120	1200	110	95	1.57	950	1000	0.117	2	22	24	87113	
112MT140K	111MT140K	113MT140	1400	110	95	1.57	950	1000	0.117	2	22	24	87113	
112MT160K	111MT160K	113MT160	1600	110	95	1.57	950	1000	0.117	2	22	24	87113	

### NOTES:

2 For  $I_{TSM}$ : 100% VRRM reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$

4  $V_{TM}$  @  $\pi \times I_{AV}$ ,  $T_J = 125^\circ\text{C}$

15  $dv/dt$  exponential to 0.67;  $T_J = 125^\circ\text{C}$

16 Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V

17 Available without auxiliary cathode. Refer to case outline for details.

18 Available in center tap (circuit common anode or circuit common cathode) configurations. Refer to case outline for details.

19 Available with spacers and longer terminal screws. Refer to case outline for details.

20 RMS isolation voltage = 3000V - 50Hz

21 RMS isolation voltage = 2500V - 50Hz

22 Value given for  $R_{\theta JC}$  is per module.

24 RMS isolation voltage = 4000V - 50Hz

25 RMS isolation voltage = 3500 - 50Hz

INPUT

CONTROL

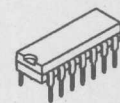
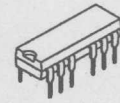
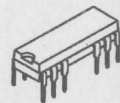
SWITCH

OUTPUT



# Control Integrated Circuits

International  
**IR** Rectifier



16-Lead SOIC

16-Lead DIP

14-lead DIP  
w/o 4

14-Lead DIP

Part Number	$V_{Offset}$ (V)	$I_{O+/-}$ (mA)	$V_{OUT}$ (V)	$t_{on/off}$ (ns)	Design Features	Fax-on-Demand
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## High and Low Side Driver

IR2110	500	2 / 2	10 / 20	120 / 94	Delay Matching (ns) 10 Cycle-by-cycle edge-triggered shutdown logic Separate logic & power returns	60011
IR2112	600	200 / 420	10 / 20	125 / 105	Delay Matching (ns) 30 Separate logic and low side supplies Cycle-by-cycle edge-triggered shutdown logic	60026
IR2113	600	2 / 2	10 / 20	120 / 94	Delay Matching (ns) 10 Separate logic and low side supplies Cycle-by-cycle edge-triggered shutdown logic	60030

INPUT

CONTROL

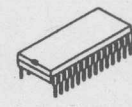
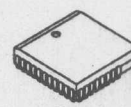
SWITCH

OUTPUT



# Control Integrated Circuits

International  
**IR** Rectifier



44-Lead PLCC

28-Lead SOIC

28-Lead DIP

Part Number	$V_{Offset}$ (V)	$I_{O+/-}$ (mA)	$V_{OUT}$ (V)	$t_{on/off}$ (ns)	Design Features	Fax-on-Demand
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## 3 High Side & 3 Low Side Driver

IR2131	600	200 / 420	10 / 20	1.3 / 0.6	Deadtime (ns) 700 <i>Independent 3 high-side and 3 low-side drivers</i> <i>Over-current shutdown turns off all 6 drivers</i>	60032
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## 3-Phase Bridge Driver

IR2130	600	200 / 420	10 / 20	675 / 425	Deadtime (ns) 2.5 <i>Independent half-bridge drivers</i> <i>Over-current shutdown turns off all 6 drivers</i>	60019
IR2132	600	200 / 420	10 / 20	675 / 425	Deadtime (ns) 0.8 <i>Independent half-bridge drivers</i> <i>Over-current shutdown turns off all 6 drivers</i>	60033

INPUT

CONTROL

SWITCH

OUTPUT



8-Lead DIP

Part Number	V <sub>Offset</sub> (V)	I <sub>O+</sub> / - (mA)	V <sub>OUT</sub> (V)	t <sub>on</sub> / off (ns)	Design Features	Fax-on-Demand
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**Current Limiting Low Side Driver**

IR2121	5	1 / 2	12 / 18	150 / 150	VCSth (mV) 230 Undervoltage lockout Current detection & limiting loop	60018
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**Current Limiting Single Channel Driver**

IR2125	500	1 / 2	12 / 18	150 / 150	VCSth (mV) 230 Undervoltage lockout Current detection & limiting loop	60017
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**Current Sensing Single Channel Driver**

IR2127	600	200 / 420	10 / 20	150 / 100	VCSth (mV) 250 Undervoltage lockout Overcurrent shutdown	60036
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IR2128	600	200 / 420	10 / 20	150 / 100	VCSth (mV) 250 Undervoltage lockout Overcurrent shutdown	60042
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**Half-Bridge Driver**

IR2111	600	200 / 420	10 / 20	850 / 150	Deadtime (ns) 700 Floating VBS drive channel Internal deadtime control	60028
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8-Lead SOIC

8-Lead DIP

Part Number	V <sub>Offset</sub> (V)	I <sub>O+/-</sub> (mA)	V <sub>OUT</sub> (V)	t <sub>on / off</sub> (ns)	Design Features	Fax-on-Demand
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## High and Low Side Driver

IR2101	600	100 / 210	10 / 20	130 / 90	Delay Matching (ns) 30 Floating VBS Drive Channel Undervoltage lockout	60044
IR2102	600	100 / 210	10 / 20	130 / 90	Delay Matching (ns) 30 Floating VBS Drive Channel Undervoltage lockout	60043
IR2103	600	100 / 210	10 / 20	600 / 90	Deadtime (ns) 500 Floating VBS Drive Channel Cross-conduction prevention	60045
IR2104	600	100 / 210	10 / 20	600 / 90	Deadtime (ns) 500 Cross-conduction prevention Internal deadtime control	60046

## Self-Oscillating Half-Bridge Driver

IR2151	600	100 / 210	10 / 20		Deadtime (ns) 1.2 Programmable oscillator frequency 50% duty cycle	60034
IR2152	600	100 / 210	10 / 20		Deadtime (ns) 1.2 Programmable oscillator frequency 50% duty cycle	60035
IR2153	600	200 / 400			Deadtime (μs) 1.2 V <sub>clamp</sub> = 15.6V 50% duty cycle	60062
IR2155	600	210 / 420	10 / 20		Deadtime (ns) 1.2 Programmable oscillator frequency Micropower supply startup current of 125μA typical	60029

# Control Integrated Circuits

International  
**IR** Rectifier



8-Lead SOIC



8-Lead DIP

Part Number	V <sub>Offset</sub> (V)	I <sub>O+/-</sub> (mA)	V <sub>OUT</sub> (V)	t <sub>on / off</sub> (ns)	Design Features	Fax-on-Demand
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## Single Channel Driver

IR2117	600	200 / 420	10 / 20	125 / 105	Floating VBS drive channel Undervoltage lockout	60031
IR2118	600	200 / 420	10 / 20	125 / 105	Floating VBS drive channel Undervoltage lockout	60041

INPUT

CONTROL

SWITCH

OUTPUT



# Control Integrated Circuit Hybrids

International  
**IOR** Rectifier



9-Lead SIP

Part Number	V <sub>IN</sub> (V)	R <sub>DS(on)</sub> (Ω)	P <sub>D</sub> @ T <sub>C</sub> = 25°C (W)	Duty Cycle	Deadtime (μs)	Fax-on-Demand
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## Self-Oscillating Half-Bridge

IR51H214	250	2.0	2.0	50%	1.2	60058
IR51H224	250	1.1	2.0	50%	1.2	60059
IR51H310	400	3.6	2.0	50%	1.2	60060
IR51H320	400	1.8	2.0	50%	1.2	60067
IR51H420	500	3.0	2.0	50%	1.2	60057
IR51H737	300	0.8	2.0	50%	1.2	60061
IR51HD214	250	2.0	2.0	50%	1.2	60058

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	Operating Voltage Range V(Pk) (+/-)	Max. On-State Resistance @25°C (Ω) (AC / DC)	Max. Load Current @40°C AC / DC (mA)	Nominal Control Current (DC) (mA)	Minimum Off-State Resistance (Ohms)	Dielectric Strength Input/ Output V(RMS)	Max. Response Time On/ Off (msec)	Max. Thermal Offset Voltage @5mA Control (μV)	Fax-on-Demand	Outline
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## Gen 2 Photovoltaic Relays

### Single-Pole



PVG612	±60	0.5/ 0.15	1000/ 2000	5	10 <sup>8</sup>	4000	2/ 0.5		10035	MR6
PVN012	±20	0.1/ 0.04	2500/ 4500	3	0.16x10 <sup>8</sup>	4000	5/ 0.5		10034	
PVT312	±250	10/ 3	190/ 320	2	2.5x10 <sup>8</sup>	4000	3/ 0.5		10038	
PVT312L	±250	15/ 4.25	170/ 300	2	2.5x10 <sup>8</sup>	4000	3/ 0.5		10038	
PVT412	±400	27/ 7	140/ 210	3	4x10 <sup>8</sup>	4000	2/ 0.5	0.5	60040	
PVT412L	±400	35/ 9	120/ 200	3	4x10 <sup>8</sup>	4000	2/ 0.5	0.5	60040	
PVU414	±400	27/ 7	140/ 210	3	10 <sup>1</sup>	4000	.5/ 0.2	0.2	10031	

### Dual-Pole



PVT322	±250	10	170	2	2.5x10 <sup>8</sup>	4000	3/ 0.5		10042	MR7
PVT422	±400	35	120	2	3.2x10 <sup>8</sup>	4000	2/ 2		10037	

### Thin-Pak



PVO402P	±400	35	120	3	4x10 <sup>8</sup>	3750	2/ 0.5		10036	MR8
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# Microelectronic Relays

International  
IOR Rectifier

Part Number	Operating Voltage Range V(Pk) (+/-)	Max. On-State Resistance @ 25°C (Ω) (AC / DC)	Max. Load Current @ 40°C DC (mA)	Nominal Control Current (DC) (mA)	Minimum Off-State Resistance (Ohms)	Dielectric Strength Input/ Output V(RMS)	Max. Response Time On/ Off (μsec)	Max. Thermal Offset Voltage @ 5mA Control (μV)	Fax-on-Demand	Outline
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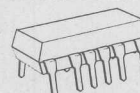
## Photovoltaic Relays

PVA / PVD



PVA1052	±100	35	70	5	10 <sup>8</sup>	2500	25/ 15	0.2	10019	MR1
PVA1054	±100	35	70	5	10 <sup>1</sup>	2500	25/ 15	0.2	10019	
PVA1352	±100	5	315	5	10 <sup>8</sup>	2500	300/ 50	0.2	10020	
PVA1354	±100	5	315	5	10 <sup>1</sup>	2500	300/ 50	0.2	10020	
PVA2352	±200	24	130	5	10 <sup>8</sup>	2500	100/ 50	0.2	10021	
PVA3054	±300	160	40	5	10 <sup>1</sup>	2500	25/ 15	0.2	10030	
PVA3055	±300	160	40	5	10 <sup>1</sup>	2500	25/ 15	0.2	10030	
PVA3324	±300	24	130	2	10 <sup>1</sup>	2500	100/ 50	0.2	10021	
PVA3354	±300	24	130	5	10 <sup>1</sup>	2500	100/ 50	0.2	10021	
PVAZ172N	±60	0.5	1000	10	10 <sup>8</sup>	4000	2000/ 500		10040	
PVD1052	+100	8	160	5	10 <sup>8</sup>	2500	25/ 15	0.2	10023	
PVD1054	+100	8	160	5	10 <sup>1</sup>	2500	25/ 15	0.2	10023	
PVD1352	+100	1.5	500	5	10 <sup>8</sup>	2500	300/ 50	0.2	10024	
PVD1354	+100	1.5	500	5	10 <sup>1</sup>	2500	300/ 50	0.2	10024	
PVD2352	+200	6	220	5	10 <sup>8</sup>	2500	100/ 50	0.2	10025	
PVD3354	+300	6	220	5	10 <sup>1</sup>	2500	100/ 50	0.2	10025	
PVDZ172N	+60	0.25	1500	10	10 <sup>8</sup>	4000	2000/ 500		10039	

PVR



PVR1300	±100	5/ 1.5	700	10	10 <sup>8</sup>	1500	300/ 50	0.2	10027	MR3
PVR1301	±100	5/ 1.5	700	10	10 <sup>1</sup>	1500	300/ 50	0.2	10027	
PVR2300	±200	24/ 6	260	10	10 <sup>8</sup>	1500	150/ 50	0.2	10028	
PVR3300	±300	24/ 6	260	10	10 <sup>8</sup>	1500	150/ 50	0.2	10028	
PVR3301	±300	24/ 6	260	10	10 <sup>1</sup>	1500	150/ 50	0.2	10028	

INPUT

CONTROL

SWITCH

OUTPUT

# Microelectronic Relays

International  
**IOR** Rectifier

Part Number	Number of Outputs	Output Voltage V(DC)	Short Circuit Current (μA)	Nominal Control Current (mA)	Dielectric Strength Input/Output V(RMS)	Fax-on-Demand	Outline
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## Photovoltaic Isolators

PVI



PVI1050	2	5/10	10/5	10	2500	10029	MR1
PVI5050	1	5	5	10	2500	10029	
PVI5080	1	5	8	10	2500	10029	
PVI5100	1	5	10	10	2500	10029	

Dual-Pole



PVI5013R	2	3	1	10	3750	11041	MR7
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INPUT

CONTROL

SWITCH

OUTPUT



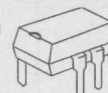
# Microelectronic Relays

International  
**IOR** Rectifier

Part Number	Operating Voltage Range V(RMS)	Max. Load Current @ 40° C A(RMS)	Transient Overvolt V(Pk)	Turn-on Signal (DC)	Dielectric Strength Input / Output V(RMS)	Min. Off-State dv/dt @ rated V (25°C) (V/μs)	Max. Off-State Leakage (μV)	Fax-on-Demand	Outline
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## ChipSwitch

### ChipSwitch



CS5005	20 to 280	.3	500	5mA	4000	1200	10	10016	MR1
CS5010	20 to 280	.3	500	10mA	4000	1200	10	10016	
CS6005	20 to 280	.3	600	5mA	4000	1200	10	10016	
CS6010	20 to 280	.3	600	10mA	4000	1200	10	10016	

### DPA



DPA4111	20 to 140	1	400	10mA	4000	600	10	10033	MR2
DPA4119	20 to 140	1	400	3.5V	4000	600	10	10033	
DPA6111	20 to 280	1	600	10mA	4000	600	10	10033	
DPA6119	20 to 280	1	600	3.5V	4000	600	10	10033	

### SPA



SPA4191	20 to 140	.9	400	10mA	4000	600	10	10032	MR5
SPA6191	20 to 280	.9	600	10mA	4000	600	10	10032	

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFETs

International  
Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 70°C (A)	$R_{\theta JA}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_A = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Surface Mount

Micro3 (SOT-23)



N-Channel		<i>Logic Level</i>						
IRLML2402*	20	0.25	0.93	0.74	370	340	91257	H1
IRLML2803	30	0.25	0.91	0.73	370	340	91258	
P-Channel		<i>Logic Level</i>						
IRLML5103	-30	0.6	-0.6	-0.48	370	340	91260	H1
IRLML6302*	-20	0.6	-0.61	-0.49	370	340	91259	

\* Indicates low  $V_{GS(th)}$ , which can operate at  $V_{GS} = 2.7V$

Micro3™, Micro6™ and Micro8™ are trademarks of International Rectifier

INPUT

CONTROL

SWITCH

OUTPUT

HEXFET® Power MOSFETs Page F-1

# HEXFET® Power MOSFETs

International  
IOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Surface Mount

Micro6



N-Channel		Logic Level						
IRLMS1503	30	0.1	2.2	1.8	160	780	91508	H1.5
IRLMS1902*	20	0.1	2.2	1.8	160	780	91540	
P-Channel		Logic Level						
IRLMS5703	-30	0.2	-1.6	-1.3	160	780	91413	H1.5
IRLMS6702*	-20	0.2	-1.6	-1.3	160	780	91414	

\* Indicates low  $V_{GS(th)}$ , which can operate at  $V_{GS} = 2.7V$

Micro3™, Micro6™ and Micro8™ are trademarks of International Rectifier

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFETs

International  
Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 70°C (A)	$R_{\theta JA}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_A = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Surface Mount

Micro8



<b>N-Channel</b>								
<i>Logic Level</i>								
IRF7601*	20	0.035	3.8	3	160	780	91261	H2
IRF7603	30	0.035	3.7	3	160	780	91262	
<b>Dual N-Channel</b>								
<i>Logic Level</i>								
IRF7501*	20	0.135	1.7	1.4	200	625	91265	H2
IRF7503	30	0.135	1.7	1.4	200	625	91266	
<b>P-Channel</b>								
<i>Logic Level</i>								
IRF7604*	-20	0.09	-2.4	-1.9	160	780	91263	H2
IRF7606	-30	0.09	-2.4	-1.9	160	780	91264	
<b>Dual P-Channel</b>								
<i>Logic Level</i>								
IRF7504*	-20	0.27	-1.2	-0.96	200	625	91267	H2
IRF7506	-30	0.27	-1.2	-0.96	200	625	91268	
<b>Dual N- and P-Channel</b>								
<i>Logic Level</i>								
IRF7507*	20	0.135	1.7	1.4	200	625	91269	H2
	-20	0.27	-1.2	-0.96	200	625	91269	
IRF7509	30	0.135	1.6	1.3	200	625	91270	
	-30	0.27	-1.2	-0.96	200	625	91270	

\* Indicates low  $V_{GS(th)}$ , which can operate at  $V_{GS} = 2.75V$

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INPUT

CONTROL

SWITCH

OUTPUT

HEXFET® Power MOSFETs Page F-3



# HEXFET® Power MOSFETs

International  
IR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 70°C (A)	$R_{\theta JA}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_A = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Surface Mount

SO-8



### N-Channel

#### Logic Level

IRF7201	30	0.03	7	5.6	50	2.5	91100	H3
IRF7401*	20	0.022	8.9	5.5	80	1.6	91244	
IRF7403	30	0.022	8.6	5.4	80	1.6	91245	
IRF7413	30	0.011	12	5.8	50	2.5	91330	

### Dual N-Channel

#### Logic Level

IRF7101	20	0.1	3.5	2.3	62	2	90871	H3
IRF7103	50	0.13	3	2.3	62	1.4	91095	
IRF7301*	20	0.05	5	3.4	90	1.4	91238	
IRF7303	30	0.05	4.7	3.2	90	1.4	91239	
IRF7311*	20	0.029	6.6	5.3	62.5	2	91435	
IRF7313	30	0.029	7	3.2	62.5	2	91480	
IRF9956	30	0.1	3.5	2.8	62.5	2	91559	

### P-Channel

#### Logic Level

IRF7204	-20	0.06	-5.3	-4.2	50	2.5	91103	H3
IRF7205	-30	0.07	-4.6	-3.7	50	2.5	91104	
IRF7404*	-20	0.04	-6.8	-4.3	80	1.6	91246	
IRF7406	-30	0.045	-6	-3.8	80	1.6	91247	
IRF7416	-30	0.02	-8.8	-4.5	50	1	91356	

### Dual P-Channel

#### Logic Level

IRF7104	-20	0.25	-2.3	-1.8	90	1.4	91096	H3
IRF7304*	-20	0.09	-4	-2.9	90	1.4	91240	
IRF7306	-30	0.1	-3.5	-2.4	90	1.4	91241	
IRF7314*	-20	0.058	-4.2	-2.3	90	1.4	91435	
IRF7316	-30	0.058	-4.9	-3.9	62.5	2	91505	
IRF9953	-30	0.25	-2.3	-1.8	62.5	2	91560	

### Dual N- and P-Channel Logic Level

IRF7105	25	0.1	3.5	2.8	62	2	91097	H3
	-25	0.25	-2.3	-1.8	62	2	91097	
IRF7307*	20	0.05	4.3	3.4	90	1.4	91242	
	-20	0.09	-4	-2.9	90	1.4	91242	
IRF7309	30	0.05	4	3.2	90	1.4	91243	
	-30	0.1	-3.5	-2.4	90	1.4	91243	
IRF9952	30	0.1	3.5	2.8	62.5	2	91562	
	-30	0.25	-2.3	-1.8	62.5	2	91562	

\* Indicates low  $V_{GS(th)}$  which can operate at  $V_{GS} = 2.7V$

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFETs

International  
Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	VFM Forward Voltage Drop @ $T_J = 25^\circ\text{C}$ (V) Fax-on-Demand	Case Outline
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## Surface Mount

FETKY SO-8



FETKY (Co-packaged HEXFET Power MOSFET and Schottky Diode)

IRF7421D1	30	0.035	6.4	3.3	50	2.5	0.50 @ 1.0A	91411	H2.5
IRF7422D2*	-20	0.09	-4.6	-2.3	50	2.5	0.57 @ 3.0A	91412	

\* Indicates low  $V_{GS(th)}$ , which can operate at  $V_{GS} = 2.7V$

FETKY™ is a trademark of International Rectifier

INPUT

CONTROL

SWITCH

OUTPUT

HEXFET® Power MOSFETs Page F-5

# HEXFET® Power MOSFETs

International  
IOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JA}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Surface Mount

SOT-223 (TO-261AA)



### N-Channel

IRFL014	60	0.2	2.7	1.7	60	2	90860	H4
IRFL110	100	0.54	1.5	0.96	60	2	90861	
IRFL210	200	1.5	0.96	0.6	60	2	90868	
IRFL214	250	2	0.79	0.5	60	2	90862	
IRFL4105	55	0.045	5.2	3	60	2.1	91381	
IRFL4310	100	0.2	2.2	1.3	60	2.1	91368	

### N-Channel

#### Logic Level

IRLL014N	55	0.14	2.8	1.6	60	2.1	91499	H4
IRLL110	100	0.54	1.5	0.93	60	2	90869	
IRLL2705	55	0.04	5.2	3	60	2.1	91380	
IRLL3303	30	0.031	6.5	3.7	60	2.1	91379	

### P-Channel

IRFL9014	-60	0.5	-1.8	-1.1	60	2	90863	H4
IRFL9110	-100	1.2	-1.1	-0.69	60	2	90864	

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFETs

International  
TOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Surface Mount

TO-252AA (D-Pak)



### N-Channel

IRFR014	60	0.2	7.7	4.9	5	25	90701	H5
IRFR024N	55	0.075	16	10	3.3	38	91336	
IRFR110	100	0.54	4.3	2.7	5	25	90524	
IRFR120S	55	0.027	37	23	1.8	69	91318	
IRFR120N	100	0.21	9.1	5.8	3.2	39	91365	
IRFR210	200	1.5	2.6	1.7	5	25	90526	
IRFR214	250	2	2.2	1.4	5	25	90703	
IRFR220	200	0.8	4.8	3	3	42	90525	
IRFR224	250	1.1	3.8	2.4	3	42	90600	
IRFR310	400	3.6	1.7	1.1	5	25	90597	
IRFR320	400	1.8	3.1	2	3	42	90598	
IRFR3910	100	0.11	15	9.5	2.4	52	91364	
IRFR410S	55	0.045	25	16	2.7	48	91302	
IRFR420	500	3	2.4	1.5	3	42	90599	
IRFRC20	600	4.4	2	1.3	3	42	90637	

### N-Channel

#### Logic Level

IRLR014	60	0.2	7.7	4.9	5	25	90624	H5
IRLR024N	55	0.065	17	11	3.3	38	91363	
IRLR110	100	0.54	4.3	2.7	5	25	90633	
IRLR120	100	0.27	7.7	4.9	3	42	90636	
IRLR2703	30	0.045	22	14	3.3	38	91335	
IRLR290S	55	0.027	36	23	1.8	69	91334	
IRLR3103	30	0.019	46	29	1.8	69	91333	

### P-Channel

IRFR9014	-60	0.5	-5.1	-3.2	5	25	90654	H5
IRFR9024	-60	0.28	-8.8	-5.6	3	42	90655	
IRFR9110	-100	1.2	-3.1	-2	5	25	90519	
IRFR9120	-100	0.6	-5.6	-3.6	3	42	90520	
IRFR9210	-200	3	-1.9	-1.2	5	25	90521	
IRFR9220	-200	1.5	-3.6	-2.3	3	42	90522	

### P-Channel

#### Logic Level

IRLR270S	55	0.04	24	15	2.7	46	91317	H5
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INPUT

CONTROL

SWITCH

OUTPUT



# HEXFET® Power MOSFETs

International  
TOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Discrete

TO-251AA (I-Pak)



### N-Channel

IRFU014	60	0.2	7.7	4.9	5	25	90701	H11
IRFU024N	55	0.075	16	10	3.3	38	91336	
IRFU110	100	0.54	4.3	2.7	5	25	90524	
IRFU1205	55	0.027	37	23	1.8	69	91318	
IRFU120N	100	0.21	9.1	5.8	3.2	39	91365	
IRFU210	200	1.5	2.6	1.7	5	25	90526	
IRFU214	250	2	2.2	1.4	5	25	90703	
IRFU220	200	0.8	4.8	3	3	42	90525	
IRFU224	250	1.1	3.8	2.4	3	42	90600	
IRFU310	400	3.6	1.7	1.1	5	25	90597	
IRFU320	400	1.8	3.1	2	3	42	90598	
IRFU3910	100	0.11	15	9.5	2.4	52	91364	
IRFU4105	55	0.045	25	19	2.7	48	91302	
IRFU420	500	3	2.4	1.5	3	42	90599	
IRFUC20	600	4.4	2	1.3	3	42	90637	

### N-Channel

#### Logic Level

IRLU014	60	0.2	7.7	4.9	5	25	90624	H11
IRLU024N	55	0.065	17	11	3.3	38	91363	
IRLU110	100	0.54	4.3	2.7	5	25	90633	
IRLU120	100	0.27	7.7	4.9	3	42	90636	
IRLU2703	30	0.045	22	14	3.3	38	91335	
IRLU2705	55	0.04	24	0	15	46	91317	
IRLU2905	55	0.027	36	23	1.8	69	91334	
IRLU3103	30	0.019	46	29	1.8	69	91333	

### P-Channel

IRFU9014	-60	0.5	-5.1	-3.2	5	25	90654	H11
IRFU9024	-60	0.28	-8.8	-5.6	3	42	90655	
IRFU9110	-100	1.2	-3.1	-2	5	25	90519	
IRFU9120	-100	0.6	-5.6	-3.6	3	42	90520	
IRFU9210	-200	3	-1.9	-1.2	5	25	90521	
IRFU9220	-200	1.5	-3.6	-2.3	3	42	90522	

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFETs

International  
IOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Discrete

HEXDIP (HD-1)



### N-Channel

IRFD014	60	0.2	1.7	1.2	120	1.3	90700	H10
IRFD024	60	0.1	2.5	1.8	120	1.3	90699	
IRFD110	100	0.54	1	0.71	120	1.3	90328	
IRFD120	100	0.27	1.3	0.94	120	1.3	90385	
IRFD210	200	1.5	0.6	0.38	120	1.3	90386	
IRFD214	250	2	0.57	0.32	120	1.3	91271	
IRFD220	200	0.8	0.8	0.5	120	1.3	90417	
IRFD224	250	1.1	0.76	0.43	120	1.3	91272	
IRFD310	400	3.6	0.42	0.23	120	1.3	91225	
IRFD320	400	1.8	0.6	0.33	120	1.3	91226	
IRFD420	500	3	0.46	0.26	120	1.3	91227	
IRFDC20	600	4.4	0.32	0.21	120	1.3	91228	

### N-Channel

#### Logic Level

IRLD014	60	0.2	1.7	1.2	120	1.3	90628	H10
IRLD024	60	0.1	2.5	1.8	120	1.3	90629	
IRLD110	100	0.54	1	0.7	120	1.3	90635	
IRLD120	100	0.27	1.3	0.94	120	1.3	90634	

### P-Channel

IRFD9014	-60	0.5	-1.1	-0.8	120	1.3	90696	H10
IRFD9024	-60	0.28	-1.6	-1.1	120	1.3	90698	
IRFD9110	-100	1.2	-0.7	-0.49	120	1.3	90389	
IRFD9120	-100	0.6	-1	-0.7	120	1.3	90331	
IRFD9210	-200	3	-0.4	-0.25	120	1.3	90387	
IRFD9220	-200	1.5	-0.56	-0.36	120	1.3	90439	

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFETs

International  
Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Surface Mount

D<sup>2</sup>Pak



### N-Channel FETKY (Co-packaged HEXFET Power MOSFET and Schottky Diode)

IRL3103DIS	30	0.014	54	34	1.8	3.1	91558	H6
N-Channel								
IRF1010NS	55	0.012	72	51	1.2	3.8	91372	H6
IRF1310NS	100	0.036	36	25	1.3	120	91514	
IRF3205S	55	0.008	98	69	1	150	91304	
IRF3415S	150	0.042	37	26	1	150	91509	
IRF3710S	100	0.028	46	33	1	150	91310	
IRF510S	100	0.54	5.6	4	3.5	43	90895	
IRF520NS	100	0.2	9.5	6.7	3.2	47	91340	
IRF530NS	100	0.11	15	11	2.4	63	91352	
IRF540NS	100	0.052	27	19	1.6	110	91342	
IRF610S	200	1.5	3.3	2.1	3.5	36	90899	
IRF614S	250	2	2.7	1.7	3.5	36	91003	
IRF620S	200	0.8	5.2	3.3	2.5	50	90900	
IRF624S	250	1.1	4.4	2.8	2.5	50	91004	
IRF630S	200	0.4	9	5.7	1.7	74	90901	
IRF634S	250	0.45	8.1	5.1	1.7	74	91005	
IRF640S	200	0.18	18	11	1	125	90902	
IRF644S	250	0.28	14	8.5	1	125	91006	
IRF710S	400	3.6	2	1.2	3.5	36	91007	
IRF720S	400	1.8	3.3	2.1	2.5	50	91008	
IRF730S	400	1	5.5	3.3	1.7	74	91009	
IRF740S	400	0.55	10	6.3	1	125	91010	
IRF820S	500	3	2.5	1.6	2.5	50	91011	
IRF830S	500	1.5	4.5	2.9	1.7	74	91012	
IRF840S	500	0.85	8	5.1	1	125	91013	
IRFZ14S	60	0.2	10	7.2	3.5	43	90890	
IRFZ24NS	55	0.07	17	12	3.3	45	91355	
IRFZ34NS	55	0.04	26	18	2.7	56	91311	
IRFZ34S	60	0.05	30	21	1.7	88	90892	
IRFZ44N	55	0.024	41	29	1.8	83	91303	
IRFZ44NS	60	0.028	50	36	1	150	91315	
IRFZ46NS	55	0.02	46	33	1.7	88	91305	
IRFZ48NS	60	0.016	53	37	1.6	3.8	91408	
IRL2505S	55	0.008	90	64	1	2.1	91326	
IRL2703S	30	0.04	24	17	3.3	130	91360	
IRL530NS	100	0.1	15	11	2.4	63	91349	

INPUT

CONTROL

SWITCH

OUTPUT

HEXFET® Power MOSFETs Page F-10

FETKY™ is a trademark of International Rectifier

# HEXFET® Power MOSFETs

International  
IOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Surface Mount

D<sup>2</sup>Pak



IRL620S	200	0.8	5.2	3.3	2.5	50	91218	H6
<b>N-Channel</b>								
<i>Logic Level</i>								
IRL2203NS	30	0.007	100	71	1.2	130	91367	H6
IRL3103S	30	0.014	56	40	1.8	83	91338	
IRL3303S	30	0.026	34	24	2.7	56	91323	
IRL3705NS	55	0.01	77	54	1.2	3.8	91502	
IRL3803S	30	0.006	120	83	1	150	91319	
IRL510S	100	0.54	5.6	4	3.5	43	90907	
IRL520S	100	0.27	9.2	6.5	2.5	60	90896	
IRLZ14S	60	0.2	10	7.2	3.5	43	90903	
IRLZ24NS	55	0.06	18	13	3.3	45	91358	
IRLZ34NS	55	0.035	27	19	2.7	56	91308	
IRLZ34S	60	0.05	30	21	1.7	88	90905	
IRLZ44NS	55	0.022	41	29	1.8	83	91347	
<b>P-Channel</b>								
IRF4905S	-55	0.02	-64	-45	1	150	91478	H6
IRF5210S	-100	0.06	-35	-25	1	150	91405	
IRF9510S	-100	1.2	-4	-2.8	3.5	43	90914	
IRF9520S	-100	0.6	-6.8	-4.8	2.5	60	90915	
IRF9530S	-100	0.3	-12	-8.2	1.7	88	90916	
IRF9540S	-100	0.2	-19	-13	1	150	90917	
IRF9610S	-200	3	-1.8	-1	6.4	20	90918	
IRF9620S	-200	1.5	-2.5	-2	3.1	40	90919	
IRF9630S	-200	0.8	-6.5	-4	1.7	74	90920	
IRF9640S	-200	0.5	-11	-6.8	1	125	90921	
IRF9Z14S	-60	0.5	-6.7	-4.7	3.5	43	90911	

INPUT

CONTROL

SWITCH

OUTPUT



# HEXFET® Power MOSFETs

International  
Rectifier

	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage	$R_{DS(on)}$ On-State Resistance	$I_D$ Continuous Drain Current 25°C	$R_{\theta JC}$ Max Thermal Resistance	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ C$	$Q_g$ Total Gate Charge (nC)	Fax-on-Demand	Case Outline
Part Number	(V)	( $\Omega$ )	(A)	( $^\circ C/W$ )	(W)			

## Discrete

TO-220AB



### N-Channel

### Low Charge

IRF737LC	300	0.75	6.1	1.7	74	3.9	91314	H12
IRF740LC	400	0.55	10	1	125	39	91068	
IRF840LC	500	0.85	8	1	125	39	91069	
IRFBC40LC	600	1.2	6.2	1	125	39	91070	

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFETs

International  
Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Discrete

TO-220AB



### N-Channel FETKY (Co-packaged HEXFET Power MOSFET and Schottky Diode)

IRL3103D1	30	0.014	54	34	1.8	2	91608	H12
N-Channel								
IRF1010N	55	0.012	72	51	1.2	130	91278	H12
IRF1310N	100	0.036	36	25	1.3	120	91611	
IRF3205	55	0.008	98	69	1	150	91279	
IRF3415	150	0.042	37	26	1	150	91477	
IRF3710	100	0.028	46	33	1	150	91309	
IRF510	100	0.54	5.6	4	3.5	43	90325	
IRF520N	100	0.2	9.5	6.7	9.5	47	91339	
IRF530N	100	0.11	15	11	2.4	60	91351	
IRF540N	100	0.052	27	19	1.6	94	91341	
IRF610	200	1.5	3.3	2.1	3.5	36	90326	
IRF614	250	2	2.7	1.7	3.5	36	90475	
IRF620	200	0.8	5.2	3.3	2.5	50	90317	
IRF624	250	1.1	4.4	2.8	2.5	50	90472	
IRF630	200	0.4	9	5.7	1.7	74	90309	
IRF634	250	0.45	8.1	5.1	1.7	74	90476	
IRF640	200	0.18	18	11	1	125	90374	
IRF644	250	0.28	14	8.5	1	125	90527	
IRF710	400	3.6	2	1.2	3.5	36	90327	
IRF720	400	1.8	3.3	2.1	2.5	50	90315	
IRF730	400	1	5.5	3.3	1.7	74	90308	
IRF734	450	1.2	4.9	3.1	1.7	74	90999	
IRF740	400	0.55	10	6.3	1	125	90375	
IRF744	450	0.63	8.8	5.6	1	125	91000	
IRF820	500	3	2.5	1.6	2.5	50	90324	
IRF830	500	1.5	4.5	2.9	1.7	74	90311	
IRF840	500	0.85	8	5.1	1	125	90376	
IRFBC20	600	4.4	2.2	1.4	2.5	50	90623	
IRFBC30	600	2.2	3.6	2.3	1.7	74	90482	
IRFBC40	600	1.2	6.2	3.9	1	125	90506	
IRFBE20	800	6.5	1.8	1.2	2.3	54	90610	
IRFBE30	800	3	4.1	2.6	2	125	90613	
IRFBF20	900	8	1.7	1.1	2.3	54	90607	
IRFBF30	900	3.7	3.6	2.3	1	125	90616	
IRFBG20	1000	11	1.4	0.86	2.3	54	90604	
IRFBG30	1000	5	3.1	2	1	125	90620	

INPUT

CONTROL

SWITCH

OUTPUT

HEXFET® Power MOSFETs Page F-13

# HEXFET® Power MOSFETs

International  
IOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Discrete

TO-220AB



IRFZ14	60	0.2	10	7.2	3.5	43	90507	H12
IRFZ24N	55	0.07	17	12	3.3	45	91354	
IRFZ46N	55	0.02	46	33	1.7	88	91277	
IRFZ48N	55	0.016	53	37	1.6	94	91406	
<b>N-Channel</b>								
<i>Logic Level</i>								
IRL2203N	30	0.007	100	71	1.2	130	91366	H12
IRL3103	30	0.014	56	40	1.8	83	91337	
IRL3303	30	0.026	34	24	2.7	56	91322	
IRL3705N	55	0.01	77	54	1.2	130	91370	
IRL3803	30	0.006	120	83	1	150	91301	
IRL520N	100	3.2	10	7.1	3.2	47	91494	
IRL530N	100	0.1	15	11	2.4	63	91348	
IRL540N	100	0.044	30	21	1.6	94	91495	H7
IRL640	200	0.18	17	11	1	125	91089	H12
IRL12203N	30	0.007	61	43	3.2	47	91378	
IRLZ14	60	0.2	10	7.2	3.5	43	90556	
IRLZ24N	55	0.06	18	13	3.3	45	91357	
IRLZ34N	55	0.035	27	19	2.7	56	91307	
IRLZ44N	55	0.022	41	29	1.8	83	91346	
<b>P-Channel</b>								
IRF4905	-55	0.02	-64	-45	1	150	91280	H12
IRF9510	-100	1.2	-4	-2.8	3.5	43	90390	
IRF9520	-100	0.6	-6.8	-4.8	2.5	60	90319	
IRF9530N	-100	0.2	-13	-9.2	2	75	91482	
IRF9540N	-100	0.117	-19	-13	1.6	94	91437	
IRF9610	-200	3	-1.8	-1	6.4	20	90350	
IRF9620	-200	1.5	-2.5	-2	3.1	40	90351	
IRF9630	-200	0.8	-6.5	-4	1.7	74	90352	
IRF9640	-200	0.5	-11	-6.8	1	125	90422	
IRF9Z14	-60	0.5	-6.7	-4.7	3.5	43	90736	
IRF9Z24N	-55	0.175	-12	-8.5	3.3	45	91484	
IRF9Z34N	-55	0.1	-17	-12	2.7	56	92001	

INPUT

CONTROL

SWITCH

OUTPUT

HEXFET® Power MOSFETs Page F-14

## IOR Rectifier

Part NumberN-Channel

### Low Charge



# HEXFET® Power MOSFETs

International  
IOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Fully Isolated

TO-220 Full-Pak



### N-Channel

IRFI1010N	55	0.012	44	31	3.2	47	91373	H7
IRFI1310N	100	0.036	22	16	3.3	45	91611	
IRFI3205	55	0.008	56	40	3.1	48	91374	
IRFI510G	100	0.54	4.5	3.2	5.5	27	90829	
IRFI520N	100	0.2	7.2	5.1	5.5	27	91362	
IRFI530N	100	0.11	11	7.8	4.5	33	91353	
IRFI540N	100	0.052	18	13	3.6	42	91361	
IRFI614G	250	2	2.1	1.3	5.5	23	90831	
IRFI620G	200	0.8	4.1	2.6	4.1	30	90832	
IRFI624G	250	1.1	3.4	2.2	4.1	30	90833	
IRFI630G	200	0.4	5.9	3.7	3.6	32	90652	
IRFI634G	250	0.45	5.6	3.5	3.6	32	90738	
IRFI640G	200	0.18	9.8	6.2	3.1	40	90649	
IRFI644G	250	0.28	7.9	5	3.1	40	90739	
IRFI720G	400	1.8	2.6	1.7	4.1	30	90834	
IRFI730G	400	1	3.7	2.3	3.6	32	90650	
IRFI734G	450	1.2	3.4	2.1	3.6	35	91001	
IRFI740G	400	0.55	5.4	3.4	3.1	40	90651	
IRFI744G	450	0.63	4.9	3.1	3.1	40	91002	
IRFI820G	500	3	2.1	1.3	4.1	30	90641	
IRFI830G	500	1.5	3.1	2	3.6	32	90646	
IRFI840G	500	0.85	4.6	2.9	3.1	40	90642	
IRFIBC20G	600	4.4	1.7	1.1	4.1	30	90850	
IRFIBC30G	600	2.2	2.5	1.6	3.6	35	90851	
IRFIBC40G	600	1.2	3.5	2.2	3.1	40	90852	
IRFIBE20G	800	6.5	1.4	0.86	4.1	30	90853	
IRFIBE30G	800	3	2.1	1.4	3.6	35	90854	
IRFIBF20G	900	8	1.2	0.79	4.1	30	90855	
IRFIBF30G	900	3.7	1.9	1.2	3.6	35	90856	
IRFIZ14G	60	0.2	8	5.7	5.5	27	90859	
IRFIZ24N	55	0.07	13	9.2	5.8	26	91501	
IRFIZ34N	55	0.04	19	13	4.8	31	91489	
IRFIZ44N	55	0.024	28	20	0.024	38	91403	
IRFIZ46N	55	0.02	31	22	3.8	40	91306	
IRFIZ48N	55	0.016	36	25	3.6	42	91407	

### N-Channel

Logic Level

IRLI3705N	55	0.01	47	33	3.2	47	91369	H7
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INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFETs

International  
TOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Fully Isolated

## TO-220 FullPak



IRLI3803	30	0.006	67	47	3.1	48	91320	H7
IRLI520N	100	0.18	7.7	5.4	5.5	27	91496	
IRLI530G	100	0.16	9.7	6.9	3.6	42	90844	
IRLI540N	100	0.044	20	14	3.6	42	91497	
IRLI620G	200	0.8	4.1	2.6	4.1	30	91235	
IRLI630G	200	0.4	5.9	3.7	3.6	32	91236	
IRLI640G	200	0.18	9.8	6.2	3.1	40	91237	
IRLIZ14G	60	0.2	8	5.7	5.5	27	90846	
IRLIZ24G	60	0.1	14	10	4.1	37	90847	
IRLIZ24N	55	0.06	14	9.9	5.8	26	91344	
IRLIZ34N	55	0.035	20	14	4.8	31	91329	
IRLIZ44N	55	0.022	28	20	4	38	91498	
P-Channel								
IRFI9540G	-100	0.117	-13	-9.2	3.6	42	90837	H7
IRFI9634G	-250	1	-4.1	-2.6	3.6	35	91488	
P-Channel Logic Level								
IRFI9520G	-100	0.6	-5.2	-3.6	4.1	37	90835	H7
IRFI9530G	-100	0.03	-7.7	-5.4	3.6	38	90836	
IRFI9620G	-200	1.5	-3	-1.9	4.1	30	90874	
IRFI9630G	-200	0.8	-4.3	-2.7	3.6	40	90838	
IRFI9640G	-200	0.5	-6.1	-3.9	3.1	40	90839	
IRFI9Z14G	-60	0.5	-5.3	-3.8	5.5	27	90840	
IRFI9Z24G	-60	0.285	-8.5	-6	4.1	37	90841	
IRFI9Z34G	-60	0.14	-12	8.5	3.6	38	90842	

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFETs

International  
IR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Nominal Sense Number Fax-on-Demand	Case Outline
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## HEXSENSE

TO-220 Hexasense



### N-Channel

IRC530	100	0.16	14	1.7	88	1540	90454	H8
IRC540	100	0.077	28	1	150	2810	90592	
IRC630	200	0.4	9	1.7	74	1570	90565	
IRC634	250	0.45	8.1	1.7	74	1580	90566	
IRC640	200	0.18	18	1	125	2880	90568	
IRC644	250	0.28	14	1	125	2900	90569	
IRC730	400	1	5.5	1	74	1600	90567	
IRC740	400	0.55	10	1	125	2940	90570	
IRC830	500	1.5	4.5	1.7	74	1600	90455	
IRC840	500	0.85	8	1	125	2970	90593	
IRCZ24	60	0.1	17	2.5	60	820	90615	
IRCZ34	60	0.05	30	1.7	88	1480	90590	
IRCZ44	60	0.028	50	1	150	2720	90529	

INPUT

CONTROL

SWITCH

OUTPUT

## HEXFET® Power MOSFETs

International  
**IOR** Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ T C = 25°C (W)	Qg Total Gate Charge (nC)	Fax-on-Demand	Case Outline
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## Discrete

TO-247AC



N-Channel	Low Charge							
IRFP350LC	400	0.3	18	0.65	190	70	91229	H13
IRFP360LC	400	0.2	23	0.45	280	98	91230	
IRFP450LC	500	0.4	16	0.65	190	70	91231	
IRFP460LC	500	0.27	20	0.45	280	98	91232	
IRFPC50LC	600	0.6	13	0.65	190	70	91233	
IRFPC60LC	600	0.4	16	0.45	280	98	91234	



# HEXFET® Power MOSFETs

International  
TOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Discrete

TO-247AC



### N-Channel

IRFP044N	55	0.02	49	35	1.5	100	91410	H13
IRFP048N	55	0.016	62	44	1.2	130	91409	
IRFP054N	55	0.012	72	51	1.2	130	91382	
IRFP064N	55	0.008	98	69	1	150	91383	
IRFP140N	100	0.052	27	19	1.6	94	91343	
IRFP150N	100	0.036	39	28	1.1	140	91503	
IRFP240	200	0.18	20	12	0.83	150	90444	
IRFP244	250	0.28	15	9.7	0.83	150	90588	
IRFP250	200	0.085	30	19	0.65	190	90443	
IRFP254	250	0.14	23	15	0.65	190	90540	
IRFP260	200	0.055	46	29	0.45	280	90755	
IRFP264	250	0.075	38	24	0.45	280	90756	
IRFP340	400	0.55	11	6.9	0.83	150	90456	
IRFP344	450	0.63	9.5	6	0.83	150	90998	
IRFP350	400	0.3	16	10	0.65	190	90445	
IRFP354	450	0.35	14	9.1	0.65	190	90995	
IRFP360	400	0.2	23	14	0.45	280	90586	
IRFP3710	100	0.028	51	36	0.83	180	91490	
IRFP440	500	0.85	8.8	5.6	0.83	150	90457	
IRFP448	500	0.6	11	6.6	0.7	180	90595	
IRFP450	500	0.4	14	8.7	0.65	190	90458	
IRFP460	500	0.27	20	13	0.45	280	90512	
IRFPC30	600	2.2	4.3	2.7	1.2	100	90596	
IRFPC40	600	1.2	6.8	4.3	0.83	150	90511	
IRFPC48	600	0.82	8.9	5.6	0.73	170	90996	
IRFPC50	600	0.6	11	7	0.65	180	90656	
IRFPC60	600	0.4	16	10	0.45	280	90870	
IRFPE30	800	3	4.1	2.6	1	125	90612	
IRFPE40	800	2	5.4	3.4	0.83	150	90578	
IRFPE50	800	1.2	7.8	4.9	0.65	190	90573	
IRFPF30	900	3.7	3.6	2.3	1	125	90618	
IRFPF40	900	2.5	4.7	2.9	0.83	150	90580	
IRFPF50	900	1.6	6.7	4.2	0.65	190	90542	
IRFPG30	1000	5	3.1	2	1	125	90621	
IRFPG40	1000	3.5	4.3	2.7	0.83	150	90576	
IRFPG50	1000	2	6.1	3.9	0.65	190	90543	

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFETs

International  
IOR Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_D$ Continuous Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation @ $T_C = 25^\circ\text{C}$ (W)	Fax-on-Demand	Case Outline
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## Discrete

TO-247AC



### P-Channel

IRFP9140	-100	0.2	-21	-15	0.83	180	90480	H13
IRFP9240	-200	0.5	-12	-7.5	0.83	150	90481	

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFET

International  
**IOR** Rectifier

	$V_{(BR)DSS}$	$R_{DS(on)}$	$I_D$	$I_{DM}$	$R_{\theta JC}$	$P_D$ Max.	
	Drain-to-Source Breakdown Voltage	On-State Resistance	Continuous Drain Current	Pulse Drain Current	Max Thermal Resistance	Power Dissipation	
	(V)	( $\Omega$ )	25°C (A)	100°C (A)	(°C/W)	(W)	
Part Number	(V)	( $\Omega$ )	(A)	(A)	(°C/W)	(W)	Case Outline
							Fax-on-Demand

## HEX-Pak Module

TO-240AA



N-Channel	Parallel Chip						
IRFK4H054	60	0.005	150	960	0.25	500	H14
IRFK4H150	100	0.014	145	580	0.25	500	
IRFK4H250	200	0.021	108	432	0.25	500	
IRFK4H350	400	0.075	50	200	0.25	500	
IRFK4H450	500	0.1	44	176	0.25	500	
IRFK4HC50	600	0.175	35	140	0.25	500	
IRFK4HE50	800	0.3	26	104	0.25	500	
IRFK4J054	60	0.005	150	960	0.25	500	
IRFK4J150	100	0.014	145	580	0.25	500	
IRFK4J250	200	0.021	108	432	0.25	500	
IRFK4J350	400	0.075	50	200	0.25	500	
IRFK4J450	500	0.1	44	176	0.25	500	
IRFK4JC50	600	0.175	35	140	0.25	500	
IRFK4JE50	800	0.3	26	104	0.25	500	
IRFK6H054	60	0.003	350	1400	0.2	625	
IRFK6H150	100	0.01	150	720	0.2	625	
IRFK6H250	200	0.015	140	560	0.2	625	
IRFK6H350	400	0.05	75	300	0.2	625	
IRFK6H450	500	0.067	66	264	0.2	625	
IRFK6HC50	600	0.1	48	192	0.2	625	
IRFK6J054	60	0.003	350	1400	0.2	625	
IRFK6J150	100	0.01	150	720	0.2	625	
IRFK6J250	200	0.015	140	560	0.2	625	
IRFK6J350	400	0.05	75	300	0.2	625	
IRFK6J450	500	0.067	66	264	0.2	625	
IRFK6JC50	600	0.1	48	192	0.2	625	

INPUT

CONTROL

SWITCH

OUTPUT

# HEXFET® Power MOSFET

International  
**IOR** Rectifier

Part Number	$V_{(BR)DSS}$ Drain-to-Source Breakdown Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	$I_{DM}$ Pulse Drain Current 100°C (A)	$R_{\theta JC}$ Max Thermal Resistance (°C/W)	$P_D$ Max. Power Dissipation (W)	Fax-on-Demand	Case Outline
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## HEX-Pak Module

TO-240AA



N-Channel	Half Bridge						H15
Part Number	$V_{(BR)DSS}$	$R_{DS(on)}$	$I_D$	$I_{DM}$	$R_{\theta JC}$	$P_D$	
IRFK2D054	60	0.01	120	480	0.25	500	
IRFK2D150	100	0.028	72	288	0.25	500	
IRFK2D250	200	0.043	54	216	0.25	500	
IRFK2D350	400	0.15	25	100	0.25	500	
IRFK2D450	500	0.2	22	88	0.25	500	
IRFK2DC50	600	0.35	18	72	0.25	500	
IRFK2DE50	800	0.6	12	48	0.25	500	
IRFK2F054	60	0.01	120	480	0.25	500	
IRFK2F150	100	0.028	72	288	0.25	500	
IRFK2F250	200	0.043	54	216	0.25	500	
IRFK2F350	400	0.15	25	100	0.25	500	
IRFK2F450	500	0.2	22	88	0.25	500	
IRFK2FC50	600	0.35	18	72	0.25	500	
IRFK2FE50	800	0.6	12	48	0.25	500	
IRFK3D150	100	0.02	125	435	0.2	625	
IRFK3D250	200	0.03	70	280	0.2	625	
IRFK3D350	400	0.1	37	148	0.2	625	
IRFK3D450	500	0.135	33	132	0.2	625	
IRFK3DC50	600	0.23	24	96	0.2	625	
IRFK3F150	100	0.02	125	435	0.2	625	
IRFK3F250	200	0.03	70	280	0.2	625	
IRFK3F350	400	0.1	37	148	0.2	625	
IRFK3F450	500	0.135	33	132	0.2	625	
IRFK3FC50	600	0.23	24	96	0.2	625	

INPUT

CONTROL

SWITCH

OUTPUT



# HEXFET® Power MOSFETs

International  
TOR Rectifier

HEX Size	Part Number	V <sub>DS</sub>	R <sub>DS(on)</sub> max.	Die Outline Figure	Recommended Source Bonding Wire mils mm	Equivalent Device Type
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## HEXFET® Die

### N-Channel

4.1	IRFC048	60	0.018	D24	20	0.15	IRFZ48
4	IRFCE40	800	2	D23	10	0.25	IRFPE40
3	IRFC430	500	1.5	D15	8	0.2	IRF830
3	IRFCC30	600	2.2	D16	8	0.2	IRFBC30
3	IRFCE30	800	3.2	D17	10	0.25	IRFBE30
3	IRFCF30	900	4	D17	10	0.25	IRFBF30
3	IRFC234	250	0.45	D14	8	0.2	IRF634
4	IRFC044	60	0.028	D19	20	0.15	IRFZ44
3	IRFC230	200	0.4	D14	8	0.2	IRF630
4	IRFC140	100	0.077	D20	15	0.38	IRF540
4	IRFC240	200	0.18	D21	15	0.38	IRF640
4	IRFC244	250	0.28	D21	15	0.38	IRF644
4	IRFC340	400	0.55	D22	12	0.3	IRF740
4	IRFC440	500	0.85	D22	12	0.3	IRF840
4.5	IRFC448	500	0.6	D25	12	0.3	IRFP448
1	IRFC014	60	0.2	D2	5	0.13	IRFZ14
3	IRFCG30	1000	5.6	D17	10	0.25	IRFBG30
2	IRFC224	250	1.1	D8	8	0.2	IRF624
1	IRFC110	100	0.54	D3	5	0.13	IRF510
1	IRFC210	200	1.5	D4	5	0.13	IRF610
1	IRFC214	250	2	D4	5	0.13	IRF614
1	IRFC310	400	3.6	D5	5	0.13	IRF710
2	IRFC024	60	0.1	D6	10	0.25	IRFZ24
3	IRFC330	400	1	D15	8	0.2	IRF730
2	IRFC220	200	0.8	D8	8	0.2	IRF620
4	IRFCF40	900	2.5	D23	10	0.25	IRFPF40
2	IRFC320	400	1.8	D9	8	0.2	IRF720
2	IRFC420	500	3	D9	8	0.2	IRF820
2	IRFCC20	600	4.4	D10	8	0.2	IRFBC20
2	IRFCE20	800	6.5	D11	5	0.13	IRFBE20
2	IRFCF20	900	8	D11	5	0.13	IRFBF20
2	IRFCG20	1000	11.5	D11	5	0.13	IRFBG20
3	IRFC034	60	0.05	D12	15	0.38	IRFZ34
3	IRFC130	100	0.16	D13	10	0.25	IRF530
2	IRFC120	100	0.27	D7	8	0.2	IRF520
5	IRFCG50	1000	2	D29	10	0.25	IRFPG50
4	IRFCC40	600	1.2	D22	12	0.3	IRFBC40
6	IRFC460	500	0.27	D32	25	0.64	IRFP460
6	IRFC360	400	0.2	D32	25	0.64	IRFP360
6	IRFC264	250	0.075	D31	25	0.64	IRFP264
6	IRFC064	60	0.009	D30	25	0.64	IRFP064

Common Characteristics: IDSS @ VDS 250μA

500nA

VGS(th) Standard gate: min 2V, max 4V with VDS=VGS, ID=250μA

VGS(th) Logic level: min 1V, max 2V with VDS=VGS, ID=250μA

RDS(on) Standard gate: measured @ VGS=10V

Logic level: measured @ VGS=5V

INPUT

CONTROL

SWITCH

OUTPUT

HEXFET® Power MOSFETs Page F-24

# HEXFET® Power MOSFETs

International  
IOR Rectifier

HEX Size	Part Number	V		R	max.	Die Outline Figure	Recommended		Equivalent Device Type
		DS	DS(on)				Source Bonding Wire		
							mils	mm	

## HEXFET® Die

	5	IRFCF50	900	1.6	D29	10	0.25	IRFPF50
	5	IRFCE50	800	1.2	D29	10	0.25	IRFPE50
	5	IRFCC50	600	0.6	D28	20	0.51	IRFPC50
	5	IRFC450	500	0.4	D27	20	0.51	IRFP450
	5	IRFC350	400	0.3	D27	20	0.51	IRFP350
	5	IRFC254	250	0.14	D27	20	0.51	IRFP254
	5	IRFC250	200	0.085	D27	20	0.51	IRFP250
	5	IRFC150	100	0.055	D27	20	0.51	IRFP150
	5	IRFC054	60	0.014	D26	25	0.64	IRFP054
	4	IRFCG40	1000	3.5	D23	10	0.25	IRFPG40
	6	IRFC260	200	0.055	D31	25	0.64	IRFP260
P-Channel								
	1	IRFC9110	-100	1.2	D34	5	0.13	IRF9510
	3	IRFC9034	-60	0.14	D39	12	0.3	IRF9Z34
	4	IRFC9240	-200	0.5	D43	15	0.38	IRF9640
	4	IRFC9140	-100	0.2	D42	15	0.38	IRF9540
	3	IRFC9230	-200	0.8	D41	8	0.2	IRF9630
	3	IRFC9130	-100	0.3	D40	10	0.25	IRF9530
	2	IRFC9220	-200	1.5	D38	8	0.2	IRF9620
	2	IRFC9120	-100	0.6	D37	8	0.2	IRF9520
	1	IRFC9210	-200	3	D35	5	0.13	IRF9610
	1	IRFC9014	-60	0.5	D33	5	0.13	IRFR9014
	2	IRFC9024	-60	0.28	D36	10	0.25	IRF9Z24
Logic Level								
N-Channel								
	4	IRLC140	100	0.077	D20	15	0.38	IRL540
	1	IRLC014	60	0.2	D2	5	0.13	IRLZ14
	1	IRLC110	100	0.54	D3	5	0.13	IRL510
	2	IRLC024	60	0.1	D6	10	0.25	IRLZ24
	2	IRLC120	100	0.27	D7	8	0.2	IRL520
	3	IRLC034	60	0.05	D12	15	0.38	IRLZ34
	3	IRLC130	100	0.16	D13	10	0.25	IRL530
	4	IRLC044	60	0.028	D18	20	0.51	IRLZ44

Common Characteristics:  $IDSS$  @  $V_{DS}$  250 $\mu$ A

500nA

$V_{GS(th)}$  Standard gate: min 2V, max 4V with  $V_{DS}=V_{GS}$ ,  $ID=250\mu$ A

$V_{GS(th)}$  Logic level: min 1V, max 2V with  $V_{DS}=V_{GS}$ ,  $ID=250\mu$ A

$R_{DS(on)}$  Standard gate: measured @  $V_{GS}=10V$

Logic level: measured @  $V_{GS}=5V$

INPUT

CONTROL

SWITCH

OUTPUT

HEXFET® Power MOSFETs Page F-25

# HEXFET® Power MOSFETs

International  
IOR Rectifier

HEX Size	Part Number	V <sub>DS</sub>	R <sub>DS(on)</sub> max.	Die Outline Figure	Recommended Source Bonding Wire		Equivalent Device Type
					mils	mm	

## HEXSENSE Die

### N-Channel

5	IRCC054	60	0.014	2200	D49	25	0.64	IRCP054
4	IRCC440	500	0.85	2780	D48	12	0.3	IRC840
4	IRCC340	400	0.55	2800	D48	12	0.3	IRC740
4	IRCC244	250	0.28	2770	D48	15	0.38	IRC644
4	IRCC240	200	0.18	2740	D48	15	0.38	IRC640
4	IRCC140	100	0.077	2680	D48	15	0.38	IRC540
4	IRCC044	60	0.028	2590	D47	20	0.51	IRCZ44
3	IRCC430	500	1.5	1520	D46	8	0.2	IRC830
3	IRCC330	400	1	1525	D46	8	0.2	IRC730
3	IRCC234	250	0.45	1490	D46	8	0.2	IRC634
3	IRCC230	200	0.4	1490	D46	8	0.2	IRC630
3	IRCC130	100	0.16	1430	D46	10	0.25	IRC530
3	IRCC034	60	0.05	1410	D45	15	0.38	IRCZ34
2	IRCC024	60	0.1	780	D44	10	0.25	IRCZ24

Common Characteristics: IDSS @ VDS 250μA

500nA

VGS(th) Standard gate: min 2V, max 4V with VDS=VGS, ID=250μA

VGS(th) Logic level: min 1V, max 2V with VDS=VGS, ID=250μA

RDS(on) Standard gate: measured @ VGS=10V

Logic level: measured @ VGS=5V

INPUT

CONTROL

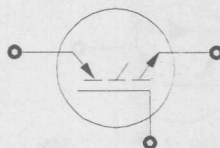
SWITCH

OUTPUT

HEXFET® Power MOSFET Page F-26

# IGBT Selection Guide

Circuit A Single Switch (w/o diode)



International  
IOR Rectifier

500 Volts		600 Volts		900 Volts		1200 Volts	
Current Rating (A)	Part Number	Current Rating (A)	Part Number	Current Rating (A)	Part Number	Current Rating (A)	Part Number
11-15	IRGB420U	5 - 10	IRGBC20K IRGBC20K-S	5 - 10	IRGBF20F IRGPF20F	5 - 10	IRGPH20M
21-25	IRGB430U IRGP430U	11-15	IRG4PC20U IRG4BC20U IRG4BC20UD IRGBC20M	16-20	IRGBF30F IRGPF30F	16-20	IRGPH40K
31-40	IRGB440U IRGP440U	16-20	IRGBC20F IRGBC20S	31-40	IRGPF40F	26-30	IRGPH40F
51-60	IRGP450U	21-25	IRG4BC30U IRG4PC30U IRGBC30K IRGBC30K-S IRGPC30K	51-60	IRGPF50F	31-40	IRGPH50K IRGPH40M
		26-30	IRGBC30M			41-50	IRGPH50M IRGPH50F
		31-40	IRGPC30S IRG4BC40U IRG4PC40U IRG4BC30F IRG4PC30F IRGBC30S IRGBC40M				
		41-50	IRGBC40K IRGBC40K-S IRGPC40K IRG4BC40F IRG4PC40F				
		51-60	IRG4PC40S IRGPC50K IRG4PC50U IRG4BC40S				
		61-70	IRG4PC50F IRGPC50S IRGPC60K				
		301-400	IRGDDN300K06 IRGDDN300M06				
		501-600	IRGDDN400K06 IRGDDN400M06				
		601-1000	IRGDDN600M06 IRGDDN600K06				

INPUT

CONTROL

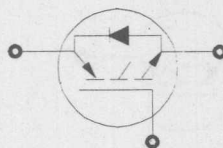
SWITCH

OUTPUT



# IGBT Selection Guide

Circuit B Single Switch (w/ diode)



International  
**IR** Rectifier

## 500 Volts

Current Rating (A) Part Number

11-15	IRGB420UD2
21-25	IRGP430UD2
	IRGB430UD2
31-40	IRGP440UD2
51-60	IRGP450UD2

## 600 Volts

Current Rating (A) Part Number

5 - 10	IRGPC20KD2
	IRGBC20KD2
	IRGBC20KD2-S
11-15	IRGBC20MD2-S
	IRGPC20MD2
	IRGBC20M-S
	IRGBC20MD2
16-20	IRGBC20FD2
21-25	IRG4BC30UD
	IRG4PC30UD
	IRGBC30KD2
	IRGBC30KD2-S
	IRGBC30UD2
	IRGPC30KD2
26-30	IRGBC30M-S
	IRGBC30MD2
	IRGBC30MD2-S
	IRGPC30M
	IRGPC30MD2
31-40	IRGBC40M-S
	IRG4PC40UD
	IRG4PC30FD
	IRGPC40M
	IRGPC40MD2
	IRG4BC30FD
41-50	IRGPC40KD2
	IRG4PC40FD
51-60	IRGPC50KD2
	IRG4PC50UD
	IRGPC50UD2
	IRGPC50M
	IRGPC50MD2
61-70	IRGPC60M
	IRG4PC50FD
301-400	IRGRDN300K06
	IRGRDN300M06
501-600	IRGRDN400M06
	IRGRDN400K06
601-1000	IRGRDN600M06
	IRGRDN600K06

## 1200 Volts

Current Rating (A) Part Number

11-15	IRGPH30MD2
16-20	IRGPH40KD2
26-30	IRGPH40FD2
31-40	IRGPH40MD2
	IRGPH50KD2
41-50	IRGPH50MD2
	IRGPH50FD2

INPUT

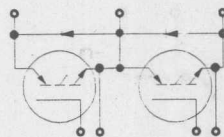
CONTROL

SWITCH

OUTPUT

# IGBT Selection Guide

Circuit E Half Bridge



International  
**IOR** Rectifier

600 Volts

Current Rating (A) Part Number

126-150	IRGTI115U06
	IRGTIN100K06
	IRGTIN100M06
151-175	IRGTI165F06
	IRGTDN150K06
	IRGTI140U06
	IRGTIN150K06
176-200	IRGTI200F06
	IRGTIN150M06
201-300	IRGTDN200K06
	IRGTDN200M06
301-400	IRGTDN300K06
	IRGTDN300M06

1200 Volts

Current Rating (A) Part Number

71-100	IRGTIN050M12
126-150	IRGTIN075M12
151-175	IRGTIN100M12

INPUT

CONTROL

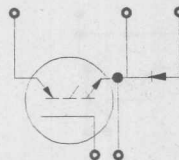
SWITCH

OUTPUT

IGBT Selection Guide Page F-29

# IGBT Selection Guide

Circuit F Chopper Low Side Switch



International  
**IOR** Rectifier

600 Volts

Current Rating (A) Part Number

**126-150** IRGKI115U06  
IRGKIN100K06  
IRGKIN100M06

**151-175** IRGKI165F06  
IRGKI140U06  
IRGKIN150K06

**176-200** IRGKI200F06  
IRGKIN150M06

1200 Volts

Current Rating (A) Part Number

**71-100** IRGKIN050M12

**126-150** IRGKIN075M12

**151-175** IRGKIN100M12

INPUT

CONTROL

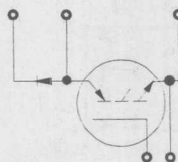
SWITCH

OUTPUT

IGBT Selection Guide Page F-30

# IGBT Selection Guide

Circuit G Chopper High Side Switch



International  
**IOR** Rectifier

600 Volts

Current Rating (A) Part Number

**126-150** IRGNI115U06  
IRGNIN100K06  
IRGNIN100M06

**151-175** IRGNI140U06  
IRGNIN150K06  
IRGNI165F06

**176-200** IRGNIN150M06  
IRGNI200F06

1200 Volts

Current Rating (A) Part Number

**71-100** IRGNIN050M12

**126-150** IRGNIN075M12

**151-175** IRGNIN100M12

INPUT

CONTROL

SWITCH

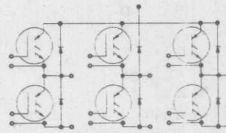
OUTPUT

IGBT Selection Guide Page F-31



# IGBT Selection Guide

Circuit H 3-Phase Bridge



International  
**IOR** Rectifier

600 Volts

Current Rating (A) Part Number

5 - 10

CPV362MF  
CPV362MK  
CPV362M4U  
CPV362MM

11-15

CPV363M4U  
CPV363MK  
CPV363MM

16-20

CPV363MF  
CPV364MU

21-25

CPV364MM  
CPV364MK

26-30

CPV364MF

INPUT

CONTROL

SWITCH

OUTPUT

IGBT Selection Guide Page F-32

# IGBTs

International  
**IOR** Rectifier

Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	Collector Current $T_C=25^\circ C$ (A)	Collector Current $T_C=100^\circ C$ (A)	Power Dissipation (W)			

## Standard

### Discrete

Low  $V_{CE(on)}$  IGBTs for Low Frequency (DC ~ 1kHz) Power Applications

TO-220AB



IRG4BC40S	600	1.6	60	31	160	A	91455	IG1
IRGBC20S	600	3.0	19	10	60	A	90790	
IRGBC30S	600	3.2	34	18	100	A	90688	

### Discrete

Low  $V_{CE(on)}$  IGBTs for Low Frequency (DC ~ 1kHz) Power Applications

TO-247AC



IRG4PC40S	600	1.6	60	31	160	A	91465	IG3
IRGPC30S	600	3.2	34	18	100	A	91146	
IRGPC50S	600	2.6	69	41	200	A	90694	

INPUT

CONTROL

SWITCH

OUTPUT

# IGBTs

International  
**IOR** Rectifier

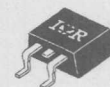
Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	Collector Current $T_C=25^\circ C$ (A)	Collector Current $T_C=100^\circ C$ (A)	Power Dissipation (W)			

## Fast

For Medium Frequency (3-10kHz) Power Applications

### Discrete

D<sup>2</sup>Pak



IRGBC20M-S	600	3.3	13	8	60	B	91131	IG2
IRGBC30M-S	600	3.9	26	16	100	B	91133	
IRGBC40M-S	600	4.0	40	24	160	B	91335	

### Discrete

TO-220AB



IRG4BC30F	600	1.6	31	17	100	A	91450	IG1
IRG4BC40F	600	1.5	49	27	160	A	91454	
IRGBC20F	600	3.8	16	9	60	A	90686	
IRGBC20M	600	3.5	13	8	60	A	91127	
IRGBC30M	600	3.9	26	16	100	A	91072	
IRGBC40M	600	4.0	40	24	160	A	91074	
IRGBF20F	900	5.3	9	5.3	60	A	90776	
IRGBF30F	900	4.7	20	11	100	A	90773	

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	$T_C=25^\circ C$ Collector Current (A)	$T_C=100^\circ C$ Collector Current (A)	Power Dissipation (W)			

## Fast

For Higher Frequency (10 - 100 kHz) Power Applications

## Discrete

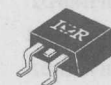
TO-247AC



IRG4PC30F	600	1.6	31	17	100	A	91459	IG3
IRG4PC40F	600	1.5	49	27	160	A	91463	
IRG4PC50F	600	1.5	70	39	200	A	91468	
IRGPC30M	600	3.9	26	16	100	B	91076	
IRGPC40M	600	3.0	40	24	160	B	91078	
IRGPC50M	600	3.2	59	35	200	B	91024	
IRGPC60M	600	3.6	69	51	280	B	91297	
IRGPF20F	900	5.3	9	5.3	60	A	91025	
IRGPF30F	900	4.7	20	11	100	A	91026	
IRGPF40F	900	4.3	31	17	160	A	90770	
IRGPF50F	900	3.7	51	28	200	A	90767	
IRGPH20M	1200	5.6	6.9	4.5	60	A	91137	
IRGPH40F	1200	4.3	29	17	160	A	90764	
IRGPH40M	1200	4.4	31	18	160	A	91029	
IRGPH50F	1200	3.9	45	25	200	A	90761	
IRGPH50M	1200	3.9	42	23	200	A	91030	

## Co-Pack

D<sup>2</sup>Pak



IRGBC20MD2-S	600	3.5	13	8	60	B	91141	IG2
IRGBC30MD2-S	600	3.9	26	16	100	B	91143	



Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	Collector Current $T_C=25^\circ C$ (A)	Collector Current $T_C=100^\circ C$ (A)	Power Dissipation (W)			

## Fast

For Medium Frequency (3-10kHz) Power Applications

### Co-Pack

TO-220AB



IRG4BC30FD	600	1.6	31	17	100	B	91451	IG1
IRGBC20FD2	600	3.8	16	9	60	B	90788	
IRGBC20MD2	600	3.5	13	8	60	B	91106	
IRGBC30MD2	600	3.9	26	16	100	B	91108	

### Co-Pack

TO-247AC



IRG4PC30FD	600	1.6	31	17	100	B	91460	IG3
IRG4PC40FD	600	1.5	49	27	160	B	91464	
IRG4PC50FD	600	1.5	70	39	200	B	91469	
IRGPC20MD2	600	3.5	13	8	60	B	91144	
IRGPC30MD2	600	3.9	26	16	100	B	91082	
IRGPC40MD2	600	4.0	40	24	160	B	91084	
IRGPC50MD2	600	3.0	59	35	200	B	91145	
IRGPH30MD2	1200	4.5	15	9	100	B	91115	
IRGPH40FD2	1200	4.3	29	17	160	B	91117	
IRGPH40MD2	1200	4.4	31	18	160	B	91118	
IRGPH50FD2	1200	3.9	45	25	200	B	91120	
IRGPH50MD2	1200	3.9	42	23	200	B	91047	

# IGBTs

International  
**IR** Rectifier

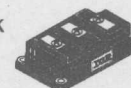
Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	Collector Current $T_C=25^\circ C$ (A)	Collector Current $T_C=100^\circ C$ (A)	Power Dissipation (W)			

## Fast

For Medium Frequency (3-10kHz) Power Applications

### Module

Double INT-A-Pak



IRGDDN300M06	600	3.0	399	159	1563	C	91174	IG13
IRGDDN400M06	600	3.0	599	239	1984	C	91175	
IRGDDN600M06	600	3.7	799	319	2604	C	91176	
IRGRDN300M06	600	3.0	399	159	1563	D	91174	
IRGRDN400M06	600	3.0	599	239	1984	D	91175	
IRGRDN600M06	600	3.7	799	319	2604	D	91176	
IRGTDN200M06	600	3.0	299	119	1000	E	91178	IG12
IRGTDN300M06	600	3.0	399	159	1316	E	91179	

### Module

IMS-2



CPV362MF	600	2.8	8.8	4.8	24	H	50026	IG5
CPV362MM	600	4.3	7.9	4.6	24	H	50031	
CPV363MM	600	3.4	13	7	37	H	50033	
CPV364MF	600	2.6	27	15	63	H	50022	
CPV364MM	600	2.7	22	12	62.5	H	50035	

INPUT

CONTROL

SWITCH

OUTPUT

# IGBTs

International  
**IOR** Rectifier

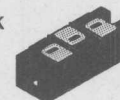
Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	$T_C=25^\circ C$ (A)	$T_C=100^\circ C$ (A)	Power Dissipation (W)			

**Fast**

*For Medium Frequency (3-10kHz) Power Applications*

**Module**

INT-A-Pak



IRGKI165F06	600	3.3	164	84	379	F	90967	IG6
IRGKI200F06	600	3.3	199	109	500	F	90968	
IRGKIN050M12	1200	3.7	99	45	455	F	91147	IG7
IRGKIN075M12	1200	3.7	149	64	600	F	91161	
IRGKIN100M06	600	3.0	149	59	500	F	91149	
IRGKIN100M12	1200	3.7	174	74	665	F	91140	
IRGKIN150M06	600	3.0	199	79	658	F	91150	
IRGNI165F06	600	3.3	164	84	379	G	90975	IG8
IRGNI200F06	600	3.3	199	109	500	G	90976	
IRGNIN050M12	1200	3.7	99	45	455	G	91163	IG9
IRGNIN075M12	1200	3.7	149	64	600	G	91164	
IRGNIN100M06	600	3.0	149	59	500	G	91153	
IRGNIN100M12	1200	3.7	174	74	665	G	91165	
IRGNIN150M06	600	3.0	199	79	658	G	91154	
IRGTI165F06	600	3.3	164	84	379	E	90959	IG8
IRGTI200F06	600	3.3	199	109	500	E	90968	
IRGTIN050M12	1200	3.7	99	45	455	E	91167	IG11
IRGTIN075M12	1200	3.7	139	59	600	E	91168	
IRGTIN100M06	600	3.0	149	59	500	E	91157	
IRGTIN100M12	1200	3.7	174	74	665	E	91169	
IRGTIN150M06	600	3.0	199	79	658	E	91158	

INPUT

CONTROL

SWITCH

OUTPUT

IGBTs Page F-38

# IGBTs

International  
**IOR** Rectifier

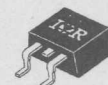
Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	Collector Current $T_C=25^\circ C$ (A)	Collector Current $T_C=100^\circ C$ (A)	Power Dissipation (W)			

## Ultra-Fast

For Higher Frequency (10 - 100 kHz) Power Applications

### Discrete

D<sup>2</sup>Pak



IRGBC20K-S	600	4.5	10	6	60	A	91130	IG2
IRGBC30K-S	600	4.3	23	14	100	A	91132	
IRGBC40K-S	600	4.2	42	25	160	A	91134	

### Discrete

TO-220AB



IRG4BC20U	600	1.9	13	6.5	60	A	91448	IG1
IRG4BC30U	600	2.1	23	12	100	A	91452	
IRG4BC40U	600	1.7	40	20	160	A	91456	
IRGB420U	500	4.0	14	7.5	60	A	90784	
IRGB430U	500	4.0	25	15	100	A	90783	
IRGB440U	500	4.0	40	22	160	A	90782	
IRGBC20K	600	4.5	10	6	60	A	91128	
IRGBC30K	600	4.8	23	14	100	A	91071	
IRGBC40K	600	4.2	42	25	160	A	91073	

INPUT

CONTROL

SWITCH

OUTPUT



# IGBTs

International  
IOR Rectifier

Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	Collector Current $T_C=25^\circ C$ (A)	Collector Current $T_C=100^\circ C$ (A)	Power Dissipation (W)			

## Ultra-Fast

For Higher Frequency (10 - 100 kHz) Power Applications

### Discrete

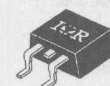
TO-247AC



IRG4PC20U	600	2.4	13	6.5	60	A	91448	IG3
IRG4PC30U	600	2.1	23	12	100	A	91461	
IRG4PC40U	600	1.7	40	20	160	A	91466	
IRG4PC50U	600	1.7	55	27	200	A	91470	
IRGP430U	500	4.0	25	15	100	A	90780	
IRGP440U	500	4.0	40	22	160	A	90779	
IRGP450U	500	4.2	59	33	200	A	91033	
IRGPC30K	600	4.8	23	14	100	A	91075	
IRGPC40K	600	4.2	42	25	160	A	91077	
IRGPC50K	600	3.7	52	30	200	A	91034	
IRGPC60K	600	4.1	69	41	280	A	91296	
IRGPH40K	1200	4.5	18	10	160	A	91248	
IRGPH50K	1200	4.5	36	20	200	A	91126	

### Co-Pack

D<sup>2</sup>Pak



IRGBC20KD2-S	600	4.5	10	6	60	B	91125	IG2
IRGBC30KD2-S	600	4.8	23	14	100	B	91142	

INPUT

CONTROL

SWITCH

OUTPUT

# IGBTs

International  
**IOR** Rectifier

Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	$T_C=25^\circ C$ (A)	$T_C=100^\circ C$ (A)	Power Dissipation (W)			

## Ultra-Fast

For Higher Frequency (10 - 100 kHz) Power Applications

### Co-Pack

TO-220AB



IRG4BC20UD	600	1.9	13	6.5	60	A	91449	IG1
IRG4BC30UD	600	2.1	23	12	100	B	91453	
IRGB420UD2	500	3.9	14	7.5	60	B	91066	
IRGB430UD2	500	4.0	25	15	100	B	91067	
IRGBC20KD2	600	4.5	10	6	60	B	91105	
IRGBC30KD2	600	4.8	23	14	100	B	91107	
IRGBC30UD2	600	4.0	23	12	100	B	90796	

### Co-Pack

TO-247AC



IRG4PC30UD	600	2.1	23	12	100	B	91462	IG1
IRG4PC40UD	600	1.7	40	20	160	B	91467	IG3
IRG4PC50UD	600	1.7	55	27	200	B	91471	
IRGP430UD2	500	4.0	25	15	100	B	91063	
IRGP440UD2	500	4.0	40	22	160	B	91064	
IRGP450UD2	500	4.2	59	33	200	B	91065	
IRGPC20KD2	600	4.5	10	6	60	B	91109	
IRGPC30KD2	600	4.8	23	14	100	B	91081	
IRGPC40KD2	600	4.2	42	25	160	B	91114	
IRGPC50KD2	600	3.7	52	30	200	B	91123	
IRGPC50UD2	600	4.0	55	27	200	B	90802	
IRGPH40KD2	1200	5.5	18	10	160	B	91250	
IRGPH50KD2	1200	4.5	36	20	200	B	91121	

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	$T_C=25^\circ C$ (A)	$T_C=100^\circ C$ (A)	Power Dissipation (W)			

## Ultra-Fast

For Higher Frequency (10-30kHz) Power Applications

### Module

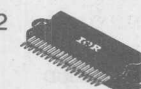
Double INT-A-Pak



IRGDDN300K06	600	3.7	339	139	1563	C	91195	IG13
IRGDDN400K06	600	3.7	519	199	1984	C	91196	
IRGDDN600K06	600	3.7	679	279	2604	C	91197	
IRGRDN300K06	600	3.7	339	139	1563	D	91201	
IRGRDN400K06	600	3.7	519	199	1984	D	91202	
IRGRDN600K06	600	3.7	679	279	2604	D	91197	
IRGTDN150K06	600	3.7	169	69	781	E	91200	IG12
IRGTDN200K06	600	3.7	259	99	1000	E	91198	
IRGTDN300K06	600	3.7	339	139	1316	E	91199	

### Module

IMS-2



CPV362M4U	600	2.2	7.2	3.9	23	H	50044	IG5
CPV362MK	600	4.5	5.7	3	24	H	50032	
CPV363M4U	600	2.2	13	6.8	36	H	50039	
CPV363MK	600	4.0	11	6	37	H	50034	
CPV364MK	600	4.1	24	13	63	H	50037	
CPV364MU	600	3.6	20	10	63	H	50025	

# IGBTs

International  
**IOR** Rectifier

Part Number	$V_{CES}$	Max $V_{CE(on)}$	$I_C$ Continuous		$P_D$ Max	Circuit	Fax-on-Demand	Outline
	Collector-to-Emitter Voltage (V)	Collector-to-Emitter Voltage (V)	$T_C=25^\circ C$ (A)	$T_C=100^\circ C$ (A)	Power Dissipation (W)			

## Ultra-Fast

For Higher Frequency (10-30kHz) Power Applications

### Module

INT-A-Pak



IRGKI115U06	600	3.8	129	69	379	F	90963	IG6
IRGKI140U06	600	3.7	169	94	500	F	90964	
IRGKIN100K06	600	3.7	129	50	500	F	91186	IG7
IRGKIN150K06	600	3.7	169	69	658	F	91186	
IRGNI115U06	600	3.8	129	69	379	G	90971	IG8
IRGNI140U06	600	3.7	169	94	500	G	90972	
IRGNIN100K06	600	3.7	129	50	500	G	91189	IG9
IRGNIN150K06	600	3.7	169	69	658	G	91190	
IRGTI115U06	600	3.8	129	69	379	E	90955	IG10
IRGTI140U06	600	3.7	169	94	500	E	90956	
IRGTIN100K06	600	3.7	129	50	500	E	91193	IG11
IRGTIN150K06	600	3.7	169	69	658	E	91194	

INPUT

CONTROL

SWITCH

OUTPUT



# SCR Inverters

International  
**IOR** Rectifier

Part Number	$V_{RRM}$		$I_{TSM}$		VGT	$I_{TSM}$		IGT	$V_{TM} @$		$t_q$	$R_{\theta JC} (DC)$	Notes	Fax-on-Demand	Outline
	$V_{DRM}$	$I_T(RMS)$	$I_T(AV)$	$@T_C$		50 Hz	60 Hz		ITM	(V) (A)					
	(V)	(A)	(A)	(°C)	(V)	(A)	(A)	(mA)	(V)	(A)	(μs)	(°C/W)			

## TO-209AC (TO-94)



ST083S10PF..0	1000	135	85	85	3	2060	2160	200	2.15	300	18 and 20	0.195	2 3 4 13 15 16	25185	T7
ST083S12PF..0	1200	135	85	85	3	2060	2160	200	2.15	300	18 and 20	0.195	2 3 4 13 15 16	25185	
ST083S04PF..0	400	135	85	85	3	2060	2160	200	2.15	300	10 and 12	0.195	2 3 4 13 15 16	25185	
ST083S08PF..0	800	135	85	85	3	2060	2160	200	2.15	300	10 and 12	0.195	2 3 4 13 15 16	25185	
ST103S04PF..0	400	165	105	85	3	2530	2650	200	1.73	300	10 and 15	0.195	2 3 4 13 15 16	25183	
ST103S08PF..0	800	165	105	85	3	2530	2650	200	1.73	300	10 and 15	0.195	2 3 4 13 15 16	25183	

## TO-209AB (TO-93)



ST173S10PF..0	1000	275	175	85	3	3940	4120	200	2.07	600	18 and 20	0.105	2 3 4 13 15 16	25181	T10
ST173S12PF..0	1200	275	175	85	3	3940	4120	200	2.07	600	18 and 20	0.105	2 3 4 13 15 16	25181	
ST183S04PF..0	400	306	195	85	3	4120	4310	200	1.8	600	10 and 15	0.105	2 3 4 13 15 16	25179	
ST183S08PF..0	800	306	195	85	3	4120	4310	200	1.8	600	10 and 15	0.105	2 3 4 13 15 16	25179	
ST203S10PF..0	1000	320	205	85	3	4420	4630	200	1.72	600	25	0.105	2 3 4 13 15 16	25177	
ST203S12PF..0	1200	320	205	85	3	4420	4630	200	1.72	600	25	0.105	2 3 4 13 15 16	25177	
ST223S04PF..0	400	345	220	85	3	4920	5150	200	1.58	600	10 and 15	0.105	2 3 4 13 15 16	25175	
ST223S08PF..0	800	345	220	85	3	4920	5150	200	1.58	600	10 and 15	0.105	2 3 4 13 15 16	25175	

$t_q (\mu s)$	Code
10	N
12	M
15	L
18	P
20	K
25	J

### NOTES:

- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- For Vgt:  $T_J = 25^\circ\text{C}$
- $V_{tm}$  measured at  $T_J = T_J \text{ max}$
- DC operation, double side cooled
- Value given for  $R_{thJC}$  is per module.
- RMS isolation voltage = 3000V - 50Hz
- Re-applied  $dv/dt = 200V/\mu s$ . Refer to table below for  $t_q$  code.

- Available with spacers and longer terminal screws. Refer to case outline for details.
- Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V
- Available with fast-on terminals. To order, change last 0 to 1 in part number, e.g. ST08304PF..1
- Re-applied  $dv/dt = 400V/\mu s$ . Refer to table below for  $t_q$  code

INPUT

CONTROL

SWITCH

OUTPUT

# SCR Inverters

International  
IOR Rectifier

Part Number	$V_{RRM}$	$V_{DRM}$	$I_{T(RMS)}$	$I_{T(AV)}$	$T_C$	$V_{GT}$	$I_{TSM}$	50 Hz	60 Hz	IGT	$V_{TM}$	$t_q$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(V)	(A)	(A)	(°C)	(V)	(A)	(A)	(mA)	(V)	(A)	(μs)	(°C/W)			

## TO-209AE (TO-118)



ST303S10PF..0	1000	471	300	65	3	6690	7000	200	2.16	1255	20 and 25	0.1	2	3	4	13	16	25173	T11
ST303S12PF..0	1200	471	300	65	3	6690	7000	200	2.16	1255	20 and 25	0.1	2	3	4	13	16	25173	
ST303S04PF..0	400	471	300	65	3	6690	7000	200	2.16	1255	10 and 15	0.1	2	3	4	13	16	25173	
ST303S08PF..0	800	471	300	65	3	6690	7000	200	2.16	1255	10 and 15	0.1	2	3	4	13	16	25173	
ST333S04PF..0	400	518	330	75	3	9520	9700	200	1.51	1040	12 and 15	0.1	2	3	4	13	16	25171	
ST333S08PF..0	800	518	330	75	3	9520	9700	200	1.51	1040	12 and 15	0.1	2	3	4	13	16	25171	

## TO-200AA (A-Puk)



ST173C10CF..0	1000	610	330	55	3	3940	4120	200	2.07	600	18 and 20	0.08	2	3	4	10	13	16	25180	T12
ST173C12CF..0	1200	610	330	55	3	3940	4120	200	2.07	600	18 and 20	0.08	2	3	4	10	13	16	25180	
ST183C04CF..0	400	690	370	55	3	4120	4310	200	1.8	600	10 and 15	0.08	2	3	4	10	13	16	25178	
ST183C08CF..0	800	690	370	55	3	4120	4310	200	1.8	600	10 and 15	0.08	2	3	4	10	13	16	25178	
ST203C10CF..0	1000	700	370	55	3	4420	4630	200	1.72	600	25	0.08	2	3	4	10	13	16	25176	
ST203C12CF..0	1200	700	370	55	3	4420	4630	200	1.72	600	25	0.08	2	3	4	10	13	16	25176	
ST223C04CF..0	400	745	390	55	3	4920	5150	200	1.58	600	10 and 15	0.08	2	3	4	10	13	16	25174	
ST223C08CF..0	800	745	390	55	3	4920	5150	200	1.58	600	10 and 15	0.08	2	3	4	10	13	16	25174	

$t_q$ (μs)	Code
10	N
12	M
15	L
18	P
20	K
25	J

### NOTES:

- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- For  $V_{GT}$ :  $T_J = 25^\circ\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max.}$
- DC operation, double side cooled
- Value given for  $R_{\theta JC}$  is per module.
- RMS isolation voltage = 3000V - 50Hz
- Re-applied  $dv/dt = 200\text{V}/\mu\text{s}$ . Refer to table below for  $t_q$  code.

- Available with spacers and longer terminal screws. Refer to case outline for details.
- Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V
- Available with fast-on terminals. To order, change last 0 to 1 in part number, e.g. ST08304PF..1
- Re-applied  $dv/dt = 400\text{V}/\mu\text{s}$ . Refer to table below for  $t_q$  code

INPUT

CONTROL

SWITCH

OUTPUT

# SCR Inverters

International  
IOR Rectifier

Part Number	$V_{RRM}$					$I_{TSM}$					$tq$	$R_{\theta J-HS}$	Notes	Fax-on-Demand	Outline
	$V_{DRM}$ (V)	$I_T(RMS)$ (A)	$I_T(AV)$ (A)	$\theta_{T-HS}$ (°C)		VGT	50 Hz (A)	60 Hz (A)	IGT (mA)						
											( $\mu s$ )	(°C/W)			

TO-200AB (E-Puk)



ST303C10CF..0	1000	1180	620	55	3	6690	7000	200	2.16	1255	20 and 25	0.04	2 3 4 10 13 16	25172	T13
ST303C12CF..0	1200	1180	620	55	3	6690	7000	200	2.16	1255	20 and 25	0.04	2 3 4 10 13 16	25172	
ST303C04CF..0	400	1180	620	55	3	6690	7000	200	2.16	1255	10 and 15	0.04	2 3 4 10 13 16	25172	
ST303C08CF..0	800	1180	620	55	3	6690	7000	200	2.16	1255	10 and 15	0.04	2 3 4 10 13 16	25172	
ST333C04CF..0	400	1435	720	55	3	9250	9700	200	1.96	1810	12 and 15	0.04	2 3 4 10 13 16	25170	
ST333C08CF..0	800	1435	720	55	3	9250	9700	200	1.96	1810	12 and 15	0.04	2 3 4 10 13 16	25170	

TO-200AC (B-Puk)



ST303C10LF..0	1000	995	515	55	3	6690	7000	200	2.16	1255	20 and 25	0.05	2 3 4 10 13 16		T14
ST303C12LF..0	1200	995	515	55	3	6690	7000	200	2.16	1255	20 and 25	0.05	2 3 4 10 13 16		
ST303C04LF..0	400	995	515	55	3	6690	7000	200	2.16	1255	10 and 15	0.05	2 3 4 10 13 16		
ST303C08LF..0	800	995	515	55	3	6690	7000	200	2.16	1255	10 and 15	0.05	2 3 4 10 13 16		
ST333C04LF..0	400	1230	620	55	3	9250	9700	200	1.96	1810	12 and 15	0.05	2 3 4 10 13 16		
ST333C08LF..0	800	1230	620	55	3	9250	9700	200	1.96	1810	12 and 15	0.05	2 3 4 10 13 16		
ST733C04LF..0	400	1900	940	55	3	16800	17600	200	1.63	1700	12 and 15	0.031	2 3 4 10 13 16		
ST733C08LF..0	800	1900	940	55	3	16800	17600	200	1.63	1700	12 and 15	0.031	2 3 4 10 13 16		

$tq$ ( $\mu s$ )	Code
10	N
12	M
15	L
18	P
20	K
25	J

## NOTES:

- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- For Vgt:  $T_J = 25^\circ\text{C}$
- $V_{tm}$  measured at  $T_J = T_J \text{ max.}$
- DC operation, double side cooled
- Value given for  $R_{\theta J-HS}$  is per module.
- RMS isolation voltage = 3000V - 50Hz
- Re-applied  $dv/dt = 200V/\mu s$ . Refer to table below for  $tq$  code.

- Available with spacers and longer terminal screws. Refer to case outline for details.
- Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V
- Available with fast-on terminals. To order, change last 0 to 1 in part number, e.g. ST08304PF..1
- Re-applied  $dv/dt = 400V/\mu s$ . Refer to table below for  $tq$  code

INPUT

CONTROL

SWITCH

OUTPUT

# SCR Inverters

International  
IOR Rectifier

Part Number Doublers Circuit Positive Control	Part Number Doublers Circuit Negative Control	$V_{RRM}$ $V_{DRM}$ (V)	$I_T(RMS)$ (A)	$I_T(AV) @ T_C$ (A) (°C)	$I_{TSM}$ 50 Hz 60 Hz (A) (A)	$t_q$ ( $\mu s$ )	$R_{\theta JC} (DC)$ (°C/W)	Notes	Fax-on- Demand	Outline
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## Thyristor/Thyristor, Fast Module

INT-A-Pak



IRKTF72-12H..	1200	71	71	90	1750	1830	20 and 25	0.125	2 11 12 14 17	87104	M5
IRKTF72-06H..	600	71	71	90	1750	1830	20 and 25	0.125	2 11 12 14 17	87104	
IRKTF72-08H..	800	71	71	90	1750	1830	20 and 25	0.125	2 11 12 14 17	87104	
IRKTF82-04H..	400	81	81	90	1850	1950	10 and 15	0.125	2 11 12 14 17	87103	
IRKTF82-08H..	800	81	81	90	1850	1950	10 and 15	0.125	2 11 12 14 17	87103	
IRKTF102-12H..	1200	105	105	90	2400	2500	20 and 25	0.085	2 11 12 14 17	87097	
IRKTF102-06H..	600	105	105	90	2400	2500	20 and 25	0.085	2 11 12 14 17	87097	
IRKTF102-08H..	800	105	105	90	2400	2500	20 and 25	0.085	2 11 12 14 17	87097	
IRKTF112-04H..	400	112	112	90	2600	2720	10 and 15	0.085	2 11 12 14 17	87091	
IRKTF112-08H..	800	112	112	90	2600	2720	10 and 15	0.085	2 11 12 14 17	87091	
IRKTF132-04H..	400	130	130	90	2700	2825	15	0.085	2 11 12 14 17	87092	
IRKTF132-08H..	800	130	130	90	2700	2825	15	0.085	2 11 12 14 17	87092	
IRKTF152-04F..	400	150	150	90	3700	3870	15	0.085	2 11 12 13 14	87093	
IRKTF152-08F..	800	150	150	90	3700	3870	15	0.085	2 11 12 13 14	87093	

## Thyristor/Thyristor, Fast Module

MAGN-A-Pak



IRKTF180-12H..	1200	180	180	85	6000	6280	20 and 25	0.063	2 11 12 17	87100	M6
IRKTF180-04H..	400	180	180	85	6000	6280	20 and 25	0.063	2 11 12 17	87100	
IRKTF180-08H..	800	180	180	85	6000	6280	20 and 25	0.063	2 11 12 17	87100	
IRKTF200-12H..	1200	200	200	85	6400	6700	20 and 25	0.063	2 11 12 13	87099	
IRKTF200-04H..	400	200	200	85	6400	6700	20 and 25	0.063	2 11 12 13	87099	
IRKTF200-08H..	800	200	200	85	6400	6700	20 and 25	0.063	2 11 12 13	87099	

$t_q (\mu s)$	Code
10	N
12	M
15	L
18	P
20	K
25	J

### NOTES:

- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- For Vgt:  $T_J = 25^\circ\text{C}$
- $V_{TM}$  measured at  $T_J = T_J \text{ max}$
- DC operation, double side cooled
- Value given for  $R_{\theta JC}$  is per module.
- RMS isolation voltage = 3000V - 50Hz
- Re-applied  $dv/dt = 200V/\mu s$ . Refer to table below for  $t_q$  code.

- Available with spacers and longer terminal screws. Refer to case outline for details.
- Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V
- Available with fast-on terminals. To order, change last 0 to 1 in part number, e.g. ST08304PF..1
- Re-applied  $dv/dt = 400V/\mu s$ . Refer to table below for  $t_q$  code

INPUT

CONTROL

SWITCH

OUTPUT

SCR Inverters Page F-47



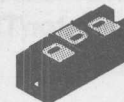
# SCR Inverters

International  
IOR Rectifier

Part Number Doubler Circuit Positive Control	Part Number Doubler Circuit Negative Control	$V_{RRM}$ $V_{DRM}$ (V)	$I_{T(RMS)}$ (A)	$I_{T(AV)} @ T_C$ (A) (°C)	$I_{TSM}$ 50 Hz 60 Hz (A) (A)	$t_q$ ( $\mu$ s)	$R_{\theta JC (DC)}$ (°C/W)	Notes	Fax-on- Demand	Outline
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## Thyristor/Diode, Fast Module

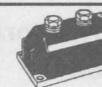
INT-A-Pak



IRKHF72-12H..	IRKLF72-12H..	1200	71	71	90	1750	1830	20 and 25	0.125	2 14 17	87104	M5
IRKHF72-06H..	IRKLF72-06H..	600	71	71	90	1750	1830	20 and 25	0.125	2 14 17	87104	
IRKHF72-08H..	IRKLF72-08H..	800	71	71	90	1750	1830	20 and 25	0.125	2 14 17	87104	
IRKHF82-04H..	IRKLF82-04H..	400	81	81	90	1850	1950	10 and 15	0.125	2 14 17	87103	
IRKHF82-08H..	IRKLF82-08H..	800	81	81	90	1850	1950	10 and 15	0.125	2 14 17	87103	
IRKHF102-12H..	IRKLF102-12H..	1200	105	105	90	2400	2500	20 and 25	0.085	2 14 17	87097	
IRKHF102-06H..	IRKLF102-06H..	600	105	105	90	2400	2500	20 and 25	0.085	2 14 17	87097	
IRKHF102-08H..	IRKLF102-08H..	800	105	105	90	2400	2500	20 and 25	0.085	2 14 17	87097	
IRKHF112-04H..	IRKLF112-04H..	400	112	112	90	2600	2720	10 and 15	0.085	2 14 17	87091	
IRKHF112-08H..	IRKLF112-08H..	800	112	112	90	2600	2720	10 and 15	0.085	2 14 17	87091	
IRKHF132-04H..	IRKLF132-04H..	400	130	130	90	2700	2825	15	0.085	2 14 17	87092	
IRKHF132-08H..	IRKLF132-08H..	800	130	130	90	2700	2825	15	0.085	2 14 17	87092	
IRKHF152-04H..	IRKLF152-04H..	400	150	150	90	3700	3870	15	0.085	2 13 14	87093	
IRKHF152-08H..	IRKLF152-08H..	800	150	150	90	3700	3870	15	0.085	2 13 14	87093	

## Thyristor/Diode, Fast Module

MAGN-A-Pak



IRKHF180-12H..	IRKLF180-12H..	1200	180	180	85	6000	6280	20 and 25	0.063	2 11 12 17	87100	M6
IRKHF180-04H..	IRKLF180-04H..	400	180	180	85	6000	6280	20 and 25	0.063	2 11 12 17	87100	
IRKHF180-08H..	IRKLF180-08H..	800	180	180	85	6000	6280	20 and 25	0.063	2 11 12 17	87100	
IRKHF200-12H..	IRKLF200-12H..	1200	200	200	85	6400	6700	20 and 25	0.063	2 11 12 17	87099	
IRKHF200-04H..	IRKLF200-04H..	400	200	200	85	6400	6700	20 and 25	0.063	2 11 12 17	87099	
IRKHF200-08H..	IRKLF200-08H..	800	200	200	85	6400	6700	20 and 25	0.063	2 11 12 17	87099	

$t_q$ ( $\mu$ s)	Code
10	N
12	M
15	L
18	P
20	K
25	J

### NOTES:

- For  $I_{TSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$
- For  $V_{gt}$ :  $T_J = 25^\circ\text{C}$
- $V_{tm}$  measured at  $T_J = T_J \text{ max.}$
- DC operation, double side cooled
- Value given for  $R_{thJC}$  is per module.
- RMS isolation voltage = 3000V - 50Hz
- Re-applied  $dv/dt = 200\text{V}/\mu\text{s}$ . Refer to table below for  $t_q$  code.

- Available with spacers and longer terminal screws. Refer to case outline for details.
- Available with flag terminal. To order, change last '0' to '2' in part number, e.g. ST180S04P2V
- Available with fast-on terminals. To order, change last 0 to 1 in part number, e.g. ST08304PF.1
- Re-applied  $dv/dt = 400\text{V}/\mu\text{s}$ . Refer to table below for  $t_q$  code

INPUT





CONTROL

SWITCH

OUTPUT

Part Number	$V_{DS(clamp)}$ Continuous Drain-to- Source Voltage (V)	$R_{DS(on)}$ On-State Resistance ( $\Omega$ )	$I_D$ Continuous Drain Current 25°C (A)	Unclamped Single Pulse Inductive Energy (mJ)	$P_D$ Max. Power Dissipation (W)	Fax-on-Demand
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## Fully Protected Power MOSFET

						 TO-220AB H12	 D²Pak H6
IRSF3010	50	80	11	400	40	60027	
						 TO-220AB H12	 SOT-223 H4
IRSF3011	50	200	5	200	30	60039	
IRSF3021	50	200	3.0	200	30	60068	
IRSF3031	50	200	1.8	200	30	60069	



Part Number	$V_{RRM}$ (V)	$I_{FAV}$ (A)	$T_C$ (°C)	$V_{FM}$	$I_{FM}$	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM}$	$V_{RWM}$	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
				25°C (V)	25°C (A)			25°C (mA)	25°C (V)				

## Surface Mount

## SMB

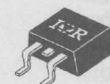


10BQ015	15	1	78	0.34	5	0.2	12	100	2	5	10	14	20396	J2
10BQ040	40	1	112	0.53	18	0.2	4	150	2	5	8	14	20397	
10BQ060	60	1	103	0.57	11	1	5	150	2	5	8	14	20438	
10BQ100	100	1	152	0.78	9.7	1	1	175	2	5	8	14	20437	

## SMC



30BQ015	15	3	75	0.35	10	0.6	50	100	2	5	9	14	20490	J3
30BQ040	40	3	123	0.45	35	0.6	20	150	2	5	11	14	20439	
30BQ060	60	3	122	0.52	35	3.4	20	150	2	5	11	14	20440	
30BQ100	100	3	148	0.62	50	2.8	5	175	2	5	11	14	20441	

D<sup>2</sup>Pak

6TQ035S	35	6	163	0.51	8	1.2	7	175	2	7	5	14	20283	K3
6TQ045S	45	6	163	0.51	8	1.2	7	175	2	7	5	14	20283	
8TQ080S	80	8	157	0.58	7.5	0.5	7	175	2	7	5	14	20238	
8TQ100S	100	8	157	0.58	7.5	0.5	7	175	2	7	5	14	20238	
10TQ035S	35	10	151	0.49	13	2	15	175	2	5	7	14	20057	
10TQ045S	45	10	151	0.49	13	2	15	175	2	5	7	14	20057	
12TQ035S	35	15	120	0.5	16	2.4	70	150	2	5	7	14	20239	
12TQ045S	45	15	120	0.5	16	2.4	70	150	2	5	7	14	20239	
18TQ035S	45	18	149	0.53	24	3.6	25	175	2	5	7	14	20178	
18TQ045S	45	18	149	0.53	24	3.6	25	175	2	5	7	14	20178	
19TQ015S	15	19	80	0.32	6.75	1.5	522	100	2	5	9	14	20266	
20TQ035S	35	20	116	0.51	27	4	105	150	2	5	7	14	20241	
20TQ045S	45	20	116	0.51	27	4	105	150	2	5	7	14	20241	

2 For EAS:  $T_J = 25^\circ\text{C}$ , IAS=IAR

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$



Part Number	$V_{RRM}$	$I_{FAV}$	$T_C$	$V_{FM}$	$I_{FM}$	$E_{AS}$	$I_{AR}$	$V_{RWM}$					Notes	Fax-on-Demand	Outline
	(V)	(A)	(°C)	25°C	(V)	(mJ)	(A)	25°C	Max. $T_J$	(mA)	(°C)				

## DO-204AL

11DQ03	30	1.1	58	0.5	6	125	2	7	14	20287	J5	
11DQ04	40	1.1	58	0.5	6	125	2	5	7	14		20287
11DQ05	50	1.1	40	0.53	11	125	2	7	14	20288		
11DQ06	60	1.1	40	0.53	11	125	2	7	14	20288		
11DQ09	90	1.1	48	0.68	1	125	2	7	14	20289		
11DQ10	100	1.1	48	0.68	1	125	2	7	14	20289		

## DO-201AD

31DQ03	30	3.3	35	0.51				25	125	2	5	7	14	20304	J6
31DQ04	40	3.3	35	0.51				25	125	2	5	7	14	20304	
31DQ05	50	3.3	19	0.53				30	125	2	5	7	14	20305	
31DQ06	60	3.3	19	0.53				30	125	2	5	7	14	20305	
31DQ09	90	3.3	25	0.69				4	125	2	5	7	14	20306	
31DQ10	100	3.3	25	0.69				4	125	2	5	7	14	20306	

## DO-204AR

50SQ080	80	5	119	0.52	15	1	7	175	2	7	14	20060	J7
50SQ100	100	5	119	0.52	15	1	7	175	2	7	14	20060	
80SQ035	35	8	119	0.44	10	1.6	15	175	2	7	14	20047	
80SQ040	40	8	119	0.44	10	1.6	15	175	2	7	14	20047	
80SQ045	45	8	119	0.44	10	1.6	15	175	2	7	14	20047	
90SQ035	35	9	69	0.42	12	1.8	70	150	2	7	14	20222	
90SQ040	40	9	69	0.42	12	1.8	70	150	2	7	14	20222	
90SQ045	45	9	69	0.42	12	1.8	70	150	2	7	14	20222	
95SQ015	15	9	55	0.25	4.5	1	348	100	2	5	9	14	20273

2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$

Part Number	$V_{RRM}$ (V)	$I_{FAV}$ (A)	$T_C$ (°C)	$V_{FM}^{\oplus} I_{FM}$		$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM}^{\oplus} V_{RWM}$		Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
				25°C (V)	25°C (A)			25°C (mA)	25°C (V)				

TO-220AC



6TQ035	35	6	163	0.51	8	1.2	7	175	2	7	14	20283	J11
6TQ040	40	6	163	0.51	8	1.2	7	175	2	7	14	20283	
6TQ045	45	6	163	0.51	8	1.2	7	175	2	7	14	20283	
8TQ080	80	8	157	0.58	7.5	0.5	7	175	2	7	14	20238	
8TQ100	100	8	157	0.58	7.5	0.5	7	175	2	7	14	20238	
10TQ035	35	10	151	0.49	13	2	15	175	2	7	14	20057	
10TQ040	40	10	151	0.49	13	2	15	175	2	7	14	20057	
10TQ045	45	10	151	0.49	13	2	15	175	2	7	14	20057	
12TQ035	35	15	120	0.5	16	2.4	70	150	2	7	14	20239	
12TQ040	40	15	120	0.5	16	2.4	70	150	2	7	14	20239	
12TQ045	45	15	120	0.5	16	2.4	70	150	2	7	14	20239	
18TQ035	35	18	149	0.53	24	3.6	25	175	2	7	14	20178	
18TQ040	40	18	149	0.53	24	3.6	25	175	2	7	14	20178	
18TQ045	45	18	149	0.53	24	3.6	25	175	2	7	14	20178	
19TQ015	15	19	80	0.32	6.75	1.5	522	100	2	5	9 14	20266	
20TQ035	35	20	116	0.51	27	4	105	150	2	7	14	20241	
20TQ040	40	20	116	0.51	27	4	105	150	2	7	14	20241	
20TQ045	45	20	116	0.51	27	4	105	150	2	7	14	20241	
MBR1035	35	10	120	0.57		1	15	150	2	7	12	20317	
MBR1045	45	10	120	0.57		1	15	150	2	7	12	20317	
MBR1635	35	16	125	0.57		1	40	150	2	7	12	20319	
MBR1645	45	16	125	0.57		1	40	150	2	7	12	20319	
MBR735	35	7.5	120	0.57		1	15	150	2	7	12	20325	
MBR745	45	7.5	120	0.57		1	15	150	2	7	12	20325	

2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$ (V)	$I_{FAV}^{\text{②}}$ (A)	$T_C$ (°C)	$V_{FM}^{\text{③}}$ $I_{FM}$		$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM}^{\text{④}}$ $V_{RWM}$		Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
				25°C (V)	25°C (A)			25°C (mA)	25°C (V)				

## DO-203AB (DO-5)



1N6097	30	50	70	0.86	81	12	250	125	2	14	15	16	20329	J16
1N6098	40	50	70	0.86	81	12	250	125	2	14	15	16	20329	
60HQ100	100	60	118	0.7	15	1	20	175	2	7	14		20055	
55HQ030	30	60	110	0.41	54	12	280	150	2	7	14		20268	
51HQ035	35	60	96	0.58	81	12	200	150	2	7	14		20021	
SD51	35	60	90	0.66			200	150	2	8	14		20327	
50HQ035	35	60	101	0.53	81	12	200	150	2	7	14		20032	
51HQ040	40	60	96	0.58	81	12	200	150	2	7	14		20021	
50HQ040	40	60	101	0.53	81	12	200	150	2	7	14		20032	
51HQ045	45	60	96	0.58	81	12	200	150	2	7	14		20021	
1N6392	45	60	115	0.68	101	15	60	175	2	8	14		20080	
50HQ045	45	60	101	0.53	81	12	200	150	2	7	14		20032	
60HQ080	80	60	118	0.7	15	1	20	175	2	7	14		20055	
75HQ035	35	75	117	0.63	101	15	45	175	2	7	14		20246	
MBR7535	35	75	90	0.6			150	150	2	7	14		20325	
75HQ040	40	75	117	0.63	101	15	45	175	2	7	14		20246	
75HQ045	45	75	117	0.63	101	15	45	175	2	7	14		20246	
MBR7545	45	75	90	0.6			150	150	2	7	14		20325	
85HQ035	35	85	112	0.62	114	17	45	175	2	7	14		20247	
85HQ040	40	85	112	0.62	114	17	45	175	2	7	14		20247	
85HQ045	45	85	112	0.62	114	17	45	175	2	7	14		20247	
95HQ015	15	95	44	0.39	9	2	1000	100	2	7	14		20272	

2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$ (V)	$I_{FAV}$ (A)	$T_C$ (°C)	$V_{FM}^{25^\circ C}$ (V)	$I_{FM}$ (A)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$V_{RWM}^{25^\circ C}$ (V)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
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## Surface Mount

## Center Tap

## SOT-223



20CJQ100	100	2	152	0.76	13	1	0.73	175	2	7	14	20480	K1
20CJQ030	30	2	132	0.52	17	0.2	13	150	2	7	14	20477	
20CJQ045	45	2	126	0.6	15	0.2	5.6	150	2	7	14	20478	
20CJQ060	60	2	127	0.67	10	0.1	2.4	150	2	7	14	20479	

## Center Tap

D<sup>2</sup>Pak

MBRB20100CT	100	10	133	0.7		0.5	150	150	2	5	12	20321	K3
10CTQ150S	150	10	145	0.86	6.75	0.3	7	175	2	5	7	20198	
MBRB2080CT	80	10	133	0.7		0.5	150	150	2	5	12	20321	
MBRB2090CT	90	10	133	0.7		0.5	150	150	2	5	12	20321	
12CTQ035S	35	12	157	0.63	8	1.2	7	175	2	5	7	20054	
12CTQ045S	45	12	157	0.63	8	1.2	7	175	2	5	7	20054	
15CTQ035S	35	15	123	0.65	10	1.5	32	150	2	5	7	20240	
MBRB1535CT	35	15	105	0.72		1	15	150	2	5	12	20318	
MBRB1545CT	45	15	105	0.72		1	15	150	2	5	12	20318	
15CTQ045S	45	15	123	0.65	10	1.5	32	150	2	5	7	20240	
16CTQ100S	100	16	145	0.69	7.5	0.5	7	175	2	5	7	20192	
16CTQ080S	80	16	145	0.69	7.5	0.5	7	175	2	5	7	20192	
20CTQ035S	35	20	145	0.68	13	2	15	175	2	5	7	20056	
20CTQ045S	45	20	145	0.68	13	2	15	175	2	5	7	20056	
32CTQ030S	30	30	109	0.53	13	3	97	150	2	5	7	20267	
25CTQ035S	35	30	102	0.64	20	3	70	150	2	5	7	20242	
30CTQ035S	35	30	127	0.7	20	3	15	175	2	5	7	20332	
30CTQ045S	45	30	127	0.7	20	3	15	175	2	5	7	20332	
25CTQ045S	45	30	102	0.64	20	3	70	150	2	5	7	20242	
30CTQ050S	50	30	97	0.71	13	1.5	45	150	2	5	7	20332	
30CTQ060S	60	30	97	0.71	13	1.5	45	150	2	5	7	20332	

2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

INPUT

CONTROL

SWITCH

OUTPUT



Part Number	$V_{RRM}$ (V)	$I_{FAV}$ (A)	$T_C$ (°C)	$V_{FM}^{\oplus}$ 25°C (V)	$I_{FM}$ (A)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$V_{RM}^{\oplus}$ 25°C (mA)	$V_{RWM}$ (V)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
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## Center Tap

## TO-220AB



10CTQ150	150	10	145	0.86	6.75	0.3	7	175	2	6	7	14	20198	K4
12CTQ035	35	12	157	0.63	8	1.2	7	175	2	6	7	14	20054	
12CTQ040	40	12	157	0.63	8	1.2	7	175	2	6	7	14	20054	
12CTQ045	45	12	157	0.63	8	1.2	7	175	2	6	7	14	20054	
15CTQ035	35	15	123	0.65	10	1.5	32	150	2	6	7	14	20240	
MBR1535CT	35	15	105	0.72		1	15	150	2	6	7	12	20318	
15CTQ040	40	15	123	0.65	10	1.5	32	150	2	6	7	14	20240	
MBR1545CT	45	15	105	0.72		1	15	150	2	6	7	12	20318	
15CTQ045	45	15	123	0.65	10	1.5	32	150	2	6	7	14	20240	
16CTQ100	100	16	145	0.69	7.5	0.5	7	175	2	6	7	14	20192	
16CTQ080	80	16	145	0.69	7.5	0.5	7	175	2	6	7	14	20192	
MBR20100CT	100	20	133	0.7		0.5	150	150	2	6	7	12	20321	
MBR2035CT	35	20	135	0.72		1	15	150	2	6	7	12	20320	
20CTQ035	35	20	145	0.68	13	2	15	175	2	6	7	14	20056	
20CTQ040	40	20	145	0.68	13	2	15	175	2	6	7	14	20056	
MBR2045CT	45	20	135	0.72		1	15	150	2	6	7	12	20320	
20CTQ045	45	20	145	0.68	13	2	15	175	2	6	7	14	20056	
MBR2080CT	80	20	133	0.7		0.5	150	150	2	6	7	12	20321	
MBR2090CT	90	20	133	0.7		0.5	150	150	2	6	7	12	20321	
32CTQ030	30	30	109	0.53	13	3	97	150	2	6	7	14	20267	
MBR2535CT	35	30	130	0.73		1	40	150	2	6	7	12	20322	
25CTQ035	35	30	102	0.64	20	3	70	150	2	6	7	14	20242	
30CTQ035	35	30	127	0.7	20	3	15	175	2	6	7	14	20332	
25CTQ040	40	30	102	0.64	20	3	70	150	2	6	7	14	20242	
30CTQ040	40	30	127	0.7	20	3	15	175	2	6	7	14	20332	
30CTQ045	45	30	127	0.7	20	3	15	175	2	6	7	14	20332	
MBR2545CT	45	30	130	0.73		1	40	150	2	6	7	12	20322	
25CTQ045	45	30	102	0.64	20	3	70	150	2	6	7	14	20242	
30CTQ050	50	30	97	0.71	13	1.5	45	150	2	6	7	14	20300	
30CTQ060	60	30	97	0.71	13	1.5	45	150	2	6	7	14	20300	

2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$

Part Number	$V_{RRM}$ (V)	$I_{FAV}^{\oplus T_C}$ (A)	$T_C$ (°C)	$V_{FM}^{\oplus I_{FM}}$ 25°C (V)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM}^{\oplus V_{RWM}}$ 25°C (mA)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
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## Center Tap

## TO-247AC



30CPQ100	100	30	140	0.81	7.5	0.5	7	175	2	7	14	20333	K5
30CPQ150	150	30	131	0.93	11.25	0.5	15	175	2	7	14	20299	
30CPQ035	35	30	124	0.64	20	3	70	150	2	7	14	20297	
MBR3035PT	35	30	105	0.72		2	100	150	2	7	14	20324	
30CPQ040	40	30	124	0.64	20	3	70	150	2	7	14	20297	
MBR3045PT	45	30	105	0.72		2	100	150	2	7	14	20324	
30CPQ045	45	30	124	0.64	20	3	70	150	2	7	14	20297	
30CPQ050	50	30	112	0.7	13	1.5	45	150	2	7	14	20298	
30CPQ060	60	30	112	0.7	13	1.5	45	150	2	7	14	20298	
30CPQ080	80	30	140	0.81	7.5	0.5	7	175	2	7	14	20333	
40CPQ100	100	40	145	0.75	11.25	0.75	15	175	2	7	14	20309	
40CPQ035	35	40	120	0.56	27	4	150	150	2	7	14	20307	
40CPQ040	40	40	120	0.56	27	4	150	175	2	7	14	20307	
40CPQ045	45	40	120	0.56	27	4	150	175	2	7	14	20307	
MBR4045PT	45	40	103	0.72	20	3	70	175	2	7	14	20343	
40CPQ050	50	40	120	0.64	18	2	96	150	2	7	14	20308	
40CPQ060	60	40	120	0.64	18	2	96	150	2	7	14	20308	
MBR4060PT	60	40	101	0.77	13	1.5	45	150	2	7	14	20344	
40CPQ080	80	40	145	0.75	11.25	0.75	15	175	2	7	14	20309	
MBR6045WT	45	60	100	0.69		2	150	150	2	7	14	20476	

2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS}=I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J=125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J=100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A=1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A=1.5 \times V_R$  typical16 For VFM:  $T_J=70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J=100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J=125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A=3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J=175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

INPUT

CONTROL

SWITCH

OUTPUT

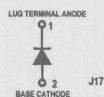
Part Number	$V_{RRM}$ (V)	$I_{FAV} @ T_C$ (A)	$T_C$ (°C)	$V_{FM} @ I_{FM}$ (V)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM} @ V_{RWM}$ (mA)	$R_{\theta CS}$ (°C/W)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
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Module  
Discrete

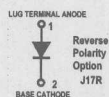
D-67 Half-Pak



120NQ040	40	120	99	0.52	81	12	400	0.4	150	2	3	7	20224	J17
120NQ045	45	120	99	0.52	81	12	400	0.4	150	2	3	7	20224	
120NQ045R	45	120	99	0.52	81	12	400	0.4	150	2	3	7	20224	
120NQ035	35	120	99	0.52	81	12	400	0.4	150	2	3	7	20224	
121NQ035	35	120	133	0.56	81	12	90	0.4	175	2	3	17	20249	
121NQ040	40	120	133	0.56	81	12	90	0.4	175	2	3	17	20249	
121NQ045	45	120	133	0.56	81	12	90	0.4	175	2	3	17	20249	
121NQ045R	45	120	133	0.56	81	12	90	0.4	175	2	3	17	20249	
122NQ030	30	120	110	0.41	54	12	560	0.4	150	2	3	7	20274	
122NQ030R	30	120	110	0.41	54	12	560	0.4	150	2	3	7	20274	
123NQ080	80	120	121	0.74	15	1	70	0.4	175	2	3	17	20250	
123NQ100	100	120	121	0.74	15	1	70	0.4	175	2	3	17	20250	
123NQ100R	100	120	121	0.74	15	1	70	0.4	175	2	3	17	20250	
125NQ015R	15	120	71	0.33	9	2	1780	0.4	100	2	3	9	20275	
125NQ015	15	120	71	0.33	9	2	1780	0.4	100	2	3	9	20275	
128NQ060	60	120	120	0.61	75	1	480	0.4	150	2	3	7		
128NQ060R	60	120	120	0.61	75	1	480	0.4	150	2	3	7		
129NQ150	150	120	139	0.74	290	1	45	0.4	175	2	3	7		
129NQ150R	150	120	139	0.74	290	1	45	0.4	175	2	3	7		
180NQ035	35	180	90	0.56	243	36	600	0.3	150	2	3	7	20227	
180NQ040	40	180	90	0.56	243	36	600	0.3	150	2	3	7	20227	
180NQ045	45	180	90	0.56	243	36	600	0.3	150	2	3	7	20227	
180NQ045R	45	180	90	0.56	243	36	600	0.3	150	2	3	17	20227	
181NQ035	35	180	125	0.56	243	36	135	0.3	175	2	3	17	20293	
181NQ040	40	180	125	0.56	243	36	135	0.3	175	2	3	17	20293	
181NQ045	45	180	125	0.56	243	36	135	0.3	175	2	3	17	20293	
181NQ045R	45	180	125	0.56	243	36	135	0.3	175	2	3	17	20293	
182NQ030R	30	180	107	0.41	162	36	840	0.3	150	2	3	7	20278	
182NQ030	30	180	107	0.41	162	36	840	0.3	150	2	3	7	20278	
183NQ080	80	180	116	0.74	15	1	105	0.3	175	2	3	7	20256	
183NQ100	100	180	116	0.74	15	1	105	0.3	175	2	3	7	20256	



J17



J17R

- 2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$
- 6 Available with optional leadforms. Refer to case outline.
- 8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$
- 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$
- 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical
- 14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical
- 16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$

- 5 Available on tape and reel. Refer to case outline.
- 7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.
- 9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$
- 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$
- 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical
- 15 VFM rated at 160A
- 17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$

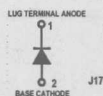
INPUT

CONTROL

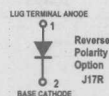
SWITCH

OUTPUT

Part Number	$V_{RRM}$ (V)	$I_{FAV} @ T_C$ (A)	$V_{FM} @ I_{FM}$ (V)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM} @ V_{RWM}$ (mA)	$R_{\theta CS}$ (°C/W)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
183NQ100R	100	180	116	0.74	15	1	105	0.3	175	2 3 7	J17
185NQ015	15	180	66	0.34	9	2	2670	0.3	100	2 3 9	20279
185NQ015R	15	180	66	0.34	9	2	2670	0.3	100	2 3 9	20279
188NQ060	60	180	120	0.61	75	1	720	0.3	150	2 3 7	
188NQ060R	60	180	120	0.61	75	1	720	0.3	150	2 3 7	
189NQ150	150	180	134	0.74	290	1	65	0.3	175	2 3 7	
189NQ150R	150	180	134	0.74	290	1	65	0.3	175	2 3 7	
240NQ040	40	240	96	0.55	324	48	800	0.2	150	2 3 7	20230
240NQ045	45	240	96	0.55	324	48	800	0.2	150	2 3 7	20230
240NQ045R	45	240	96	0.55	324	48	800	0.2	150	2 3 7	20230
240NQ035	35	240	96	0.55	324	48	800	0.2	150	2 3 7	20230
241NQ035	35	240	130	0.59	324	48	180	0.2	175	2 3 17	20261
241NQ045R	45	240	130	0.59	324	48	180	0.2	175	2 3 17	20261
241NQ040	40	240	130	0.59	324	48	180	0.2	175	2 3 17	20261
241NQ045	45	240	130	0.59	324	48	180	0.2	175	2 3 17	20261
242NQ030	30	240	111	0.42	216	48	1120	0.2	150	2 3 7	20281
242NQ030R	30	240	111	0.42	216	48	1120	0.2	150	2 3 7	20281
243NQ080	80	240	120	0.74	15	1	140	0.2	175	2 3 17	20261
243NQ100	100	240	120	0.74	15	1	140	0.2	175	2 3 17	20261
243NQ100R	100	240	120	0.74	15	1	140	0.2	175	2 3 17	20261
245NQ015	15	240	70	0.34	9	2	3560	0.2	100	2 3 9	20296
245NQ015R	15	240	70	0.34	9	2	3560	0.2	100	2 3 9	20296
248NQ060	60	240	120	0.61	75	1	960	0.2	150	2 3 7	
248NQ060R	60	240	120	0.61	75	1	960	0.2	150	2 3 7	
249NQ150R	150	240	139	0.74	290	1	85	0.2	175	2 3 7	
249NQ150	150	240	139	0.74	290	1	85	0.2	175	2 3 7	



J17



J17R

2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

INPUT

CONTROL

SWITCH

OUTPUT



Part Number	$V_{RRM}$ (V)	$I_{FAV}^{\oplus}$ (A)	$T_C$ (°C)	$V_{FM}^{\oplus}$ (V)	$I_{FM}$ (A)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM}^{\oplus}$ (mA)	$V_{RWM}$ (V)	$R_{\theta CS}$ (°C/W)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
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**Module**  
Doubler

TO-244AB Non-Isolated



203DNQ100	100	200	120	0.72	15	1	0.7	0.4	175	2	3	7		K18
203DMQ100	100	200	100	0.72	15	1	0.7	0.7	175	2	3	7		
209DMQ150	150	200	97	0.8	32	1	50	0.7	175	2	3	7		
209DNQ150	150	200	100	0.8	32	1	50	0.4	175	2	3	7		
400DMQ045	45	400	60	0.62	180	40	800	0.5	150	2	3	7		

**Module**  
Center Tap

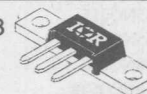
D61-6-SL



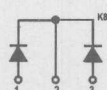
60CNQ045SL	45	60	116	0.44	40	6	200	0.85	150	2	3	7	20195	K10
61CNQ045SL	45	60	149	0.49	40	6	45	0.85	175	2	3	7	20248	
62CNQ030SL	30	60	135	0.35	27	6	280	0.85	150	2	3	7	20269	
63CNQ100SL	100	60	155	0.64	15	1	35	0.85	175	2	3	7	20223	

**Module**  
Center Tap

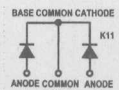
D61-8



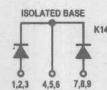
80CNQ045	45	80	109	0.47	54	8	200	0.85	150	2	3	7	20216	K11
80CNQ035	35	80	109	0.47	54	8	200	0.85	150	2	3	7	20216	
80CNQ040	40	80	109	0.47	54	8	200	0.85	150	2	3	7	20216	
81CNQ035	35	80	141	0.54	54	8	45	0.85	175	2	3	7	20237	
81CNQ040	40	80	141	0.54	54	8	45	0.85	175	2	3	7	20237	
81CNQ045	45	80	141	0.54	54	8	45	0.85	175	2	3	7	20237	
81CNQ050	50	80	141	0.54	54	8	45	0.85	175	2	3	7	20237	
82CNQ030	30	80	119	0.35	36	8	280	0.85	150	2	3	7	20270	
83CNQ080	80	80	132	0.67	15	1	35	0.85	175	2	3	7	20221	
83CNQ100	100	80	132	0.67	15	1	35	0.85	175	2	3	7	20221	
85CNQ015	15	80	78	0.32	9	2	890	0.85	100	2	3	7	20271	
88CNQ060	60	80	95	0.56	75	1	240	0.85	150	2	3	7	20494	
89CNQ150	150	80	117	0.69	190	1	21	0.85	175	2	3	7	20495	



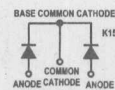
K8, K9, K10



K11, K12, K13, K17



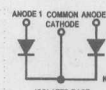
K14



K15, K16



K18



K19

2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

INPUT

CONTROL

SWITCH

OUTPUT

# Schottky Diodes

International  
IOR Rectifier

Part Number	$V_{RRM}$ (V)	$I_{FAV}@T_C$ (A)	$V_{FM}@I_{FM}$ (V)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM}@V_{RWM}$ (mA)	$R_{\theta CS}$ (°C/W)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
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## Module Center Tap

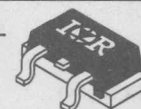
D61-8-SM



80CNQ045SM	45	80	109	0.47	54	8	200	0.85	150	2	3	7	20216	K12
81CNQ045SM	45	80	141	0.54	54	8	45	0.85	175	2	3	7	20237	
81CNQ050SM	50	80	141	0.54	54	8	45	0.85	175	2	3	7	20237	
82CNQ030SM	30	80	119	0.35	36	8	280	0.85	150	2	3	7	20270	
83CNQ100SM	100	80	132	0.67	15	1	35	0.85	175	2	3	7	20221	
85CNQ015SM	15	80	78	0.32	9	2	890	0.85	100	2	3	7	20271	

## Module Center Tap

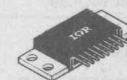
D61-8-SL



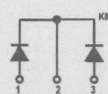
80CNQ045SL	45	80	109	0.47	54	8	200	0.85	150	2	3	7	20216	K13
81CNQ050SL	50	80	141	0.54	54	8	45	0.85	175	2	3	7	20237	
81CNQ045SL	45	80	141	0.54	54	8	45	0.85	175	2	3	7	20237	
82CNQ030SL	30	80	119	0.35	36	8	280	0.85	150	2	3	7	20270	
83CNQ100SL	100	80	132	0.67	15	1	35	0.85	175	2	3	7	20221	
85CNQ015SL	15	80	78	0.32	9	2	890	0.85	100	2	3	7	20271	

## Module Center Tap

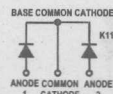
D-60 Isolated



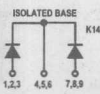
150CMQ035	35	150	71	0.6	101	15	200	1	150	2	3	7	20251	K14
150CMQ040	40	150	71	0.6	101	15	200	1	150	2	3	7	20251	
150CMQ045	45	150	71	0.6	101	15	200	1	150	2	3	7	20251	
151CMQ035	35	150	104	0.65	101	15	45	1	175	2	3	7	20252	
151CMQ040	40	150	104	0.65	101	15	45	1	175	2	3	7	20252	
151CMQ045	45	150	104	0.65	101	15	45	1	175	2	3	7	20252	
152CMQ030	30	150	85	0.47	68	15	280	1	150	2	3	7	20276	
153CMQ080	80	150	90	0.8	15	1	35	1	175	2	3	7	20253	
153CMQ100	100	150	90	0.8	15	1	35	1	175	2	3	7	20253	



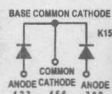
K8, K9, K10



K11, K12, K13, K17



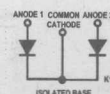
K14



K15, K16



K18



K19

- For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$
- Available with optional leadforms. Refer to case outline.
- For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$
- For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$
- Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical
- Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical
- For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$
- Available on tape and reel. Refer to case outline.
- For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.
- For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$
- For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$
- Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical
- VFM rated at 160A
- For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$

INPUT

CONTROL

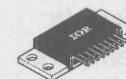
SWITCH

OUTPUT

Part Number	$V_{RRM}$ (V)	$I_{FAV}$ (A)	$T_C$ (°C)	$V_{FM}$ (V)	$I_{FM}$ (A)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM}$ (mA)	$V_{RWM}$ (V)	$R_{\theta CS}$ (°C/W)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
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### Module Center Tap

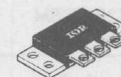
D-60 Non-Isolated



150CNQ045	45	150	86	0.6	101	15	200	0.8	150	2	3	7		K15
151CNQ045	45	150	118	0.65	101	15	45	0.8	175	2	3	7		
153CNQ100	100	150	107	0.8	15	1	35	0.8	175	2	3	7		

### Module Center Tap

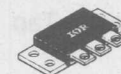
TO-249AA Isolated



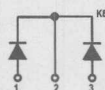
160CMQ035	35	160	69	0.6	108	16	200	1	150	2	3	7	20254	K16
160CMQ040	40	160	69	0.6	108	16	200	1	150	2	3	7	20254	
160CMQ045	45	160	69	0.6	108	16	200	1	150	2	3	7	20254	
161CMQ035	35	160	101	0.63	108	16	45	1	175	2	3	7	20174	
161CMQ040	40	160	101	0.63	108	16	45	1	175	2	3	7	20174	
161CMQ045	45	160	101	0.63	108	16	45	1	175	2	3	7	20174	
162CMQ030	30	160	83	0.46	72	16	280	1	150	2	3	7	20277	
163CMQ100	100	160	87	0.82	15	1	35	1	175	2	3	7	20255	
163CMQ080	80	160	87	0.82	15	1	35	1	175	2	3	7	20255	
168CMQ060	60	160	96	0.67	75	1	240	1	150	2	3	7		

### Module Center Tap

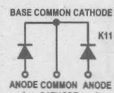
TO-249AA Non-Isolated



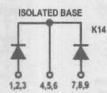
160CNQ045	45	160	100	0.6	108	16	200	0.8	150	2	3	7		K17
161CNQ045	45	160	120	0.63	108	16	45	0.8	175	2	3	7		
162CNQ030	30	160	107	0.46	72	16	280	0.8	150	2	3	7		
163CNQ100	100	160	112	0.82	15	1	35	0.8	175	2	3	7		



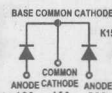
K8, K9, K10



K11, K12, K13, K17



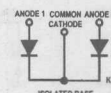
K14



K15, K16



K18



K19

2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $VA = 1.5 \times VR$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $VA = 1.5 \times VR$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $VA = 3 \times VR$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

INPUT

CONTROL

SWITCH

OUTPUT

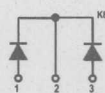
Part Number	$V_{RRM}$ (V)	$I_{FAV}^{\oplus}$ (A)	$T_C$ (°C)	$V_{FM}^{\oplus}$ (V)	$I_{FM}$ (A)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM}^{\oplus}$ (mA)	$V_{RWM}$ (V)	$R_{\theta CS}$ (°C/W)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
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Module  
Center Tap

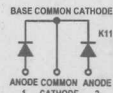
## TO-244AB Non-Isolated



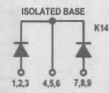
200CNQ045	45	200	108	0.49	135	20	400	0.4	150	2	3	7	20257	K18
200CNQ040	40	200	108	0.49	135	20	400	0.4	150	2	3	7	20257	
200CNQ035	35	200	108	0.49	135	20	400	0.4	150	2	3	7	20257	
201CNQ035	35	200	138	0.58	135	20	90	0.4	175	2	3	17	20258	
201CNQ050	50	200	138	0.58	135	20	90	0.4	175	2	3	17	20258	
201CNQ040	40	200	138	0.58	135	20	90	0.4	175	2	3	17	20258	
201CNQ045	45	200	138	0.58	135	20	90	0.4	175	2	3	17	20258	
203CNQ100	100	200	130	0.72	15	1	70	0.4	175	2	3	17	20259	
203CNQ080	80	200	130	0.72	15	1	70	0.4	175	2	3	17	20259	
208CNQ060	60	200	106	0.75	75	1	480	0.4	150	2	3	7		
209CNQ150	150	200	131	0.8	32	1	50	0.4	175	2	3	7		
220CNQ030	30	200	114	0.4	99	22	560	0.4	150	2	3	7	20280	
220CNQ025	25	200	114	0.4	99	22	560	0.4	150	2	3	7	20280	
225CNQ015	15	220	74	0.32	9	2	2000	0.4	100	2	3	9	20294	
300CNQ045	45	300	96	0.62	160	30	600	0.4	150	2	3	7		
300CNQ035	35	300	100	0.62	160	30	600	0.4	150	2	3	7		
300CNQ040	40	300	98	0.62	160	30	600	0.4	150	2	3	7		
301CNQ040	40	300	120	0.59	202	30	90	0.4	175	2	3	17	20177	
301CNQ045	45	300	120	0.59	202	30	90	0.4	175	2	3	17	20177	
301CNQ050	50	300	120	0.59	202	30	90	0.4	175	2	3	17	20177	
301CNQ035	35	300	120	0.59	202	30	90	0.4	175	2	3	17	20177	
303CNQ100	100	300	126	0.72	15	1	105	0.3	175	2	3	7	20234	
303CNQ080	80	300	126	0.72	15	1	105	0.3	175	2	3	7	20234	
309CNQ150	150	300	125	0.85	190	1	75	0.3	175	2	3	7		
400CNQ035	35	400	105	0.52	180	40	800	0.2	150	2	3	7	20264	
400CNQ040	40	400	105	0.52	180	40	800	0.2	150	2	3	7	20264	
400CNQ045	45	400	105	0.52	180	40	800	0.2	150	2	3	7	20264	
401CNQ035	35	400	138	0.56	270	40	180	0.2	175	2	3	17	20263	
401CNQ040	40	400	138	0.56	270	40	180	0.2	175	2	3	17	20263	
401CNQ045	45	400	138	0.56	270	40	180	0.2	175	2	3	17	20263	
403CNQ080	80	400	105	0.72	15	1	140	0.2	175	2	3	17	20214	
403CNQ100	100	400	105	0.72	15	1	140	0.2	175	2	3	17	20214	



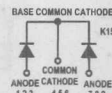
K8, K9, K10



K11, K12, K13, K17



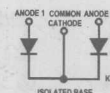
K14



K15, K16



K18



K19

- 2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$
- 6 Available with optional leadforms. Refer to case outline.
- 8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$
- 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$
- 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical
- 14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical
- 16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$
- 5 Available on tape and reel. Refer to case outline.
- 7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.
- 9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$
- 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$
- 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical
- 15 VFM rated at 160A
- 17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$

INPUT

CONTROL

SWITCH

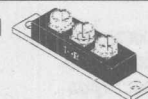
OUTPUT



Part Number	$V_{RRM}$ (V)	$I_{FAV}$ (A)	$T_C$ (°C)	$V_{FM}$ (V)	$I_{FM}$ (A)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM}$ (mA)	$V_{RWM}$ (V)	$R_{\theta CS}$ (°C/W)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
408CNQ060	60	400	49	0.88	75	1	960	0.2	150	2	3	7		K18
409CNQ150	150	400	128	0.85	190	1	90	0.2	175	2	3	7		
440CNQ030	30	440	115	0.41	198	44	1120	0.2	150	2	3	7	20282	
445CNQ015	15	440	75	0.47	18	4	4000	0.2	100	2	3	7	13	

Module  
Center Tap

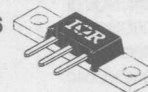
TO-244AB Isolated



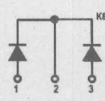
201CMQ045	45	200	110	0.58	135	20	90	0.7	175	2	3	7		K19
203CMQ100	100	200	100	0.72	15	1	70	0.7	175	2	3	7		
208CMQ060	60	200	95	0.75	75	1	480	0.5	150	2	3	7		
209CMQ150	150	200	97	0.8	32	1	50	0.7	175	2	3	7		
220CMQ030	30	220	95	0.4	99	22	560	0.7	150	2	3	7		
401CMQ045	45	400	120	0.56	270	40	180	0.5	175	2	3	7		
403CMQ100	100	400	85	0.72	15	1	140	0.5	175	2	3	7		
408CMQ060	60	400	109	0.88	75	1	960	0.5	150	2	3	7		
440CMQ030	30	440	63	0.41	198	44	1120	0.5	150	2	3	7		

Module  
Center Tap

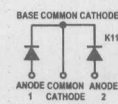
D61-6



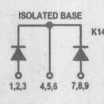
60CNQ045	45	60	116	0.44	40	6	200	0.85	150	2	3	7	20195	K8
60CNQ035	35	60	116	0.44	40	6	200	0.85	150	2	3	7	20195	
60CNQ040	40	60	116	0.44	40	6	200	0.85	150	2	3	7	20195	
61CNQ040	40	60	149	0.49	40	6	45	0.85	175	2	3	7	20248	
61CNQ045	45	60	149	0.49	40	6	45	0.85	175	2	3	7	20248	
61CNQ035	35	60	149	0.49	40	6	45	0.85	175	2	3	7	20248	
62CNQ030	30	60	135	0.35	27	6	280	0.85	150	2	3	7	20269	
63CNQ080	80	60	155	0.64	15	1	35	0.85	175	2	3	7	20223	
63CNQ100	100	60	155	0.64	15	1	35	0.85	175	2	3	7	20223	



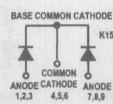
K8, K9, K10



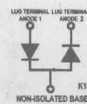
K11, K12, K13, K17



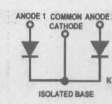
K14



K15, K16



K18



K19

2 For  $E_{AS}$ :  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

INPUT

CONTROL

SWITCH

OUTPUT

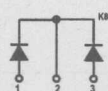
Part Number	$V_{RRM}$ (V)	$I_{FAV} @ T_C$ (A)	$V_{FM} @ I_{FM}$ (V)	$E_{AS}$ (mJ)	$I_{AR}$ (A)	$I_{RM} @ V_{RWM}$ (mA)	$R_{\theta CS}$ (°C/W)	Max. $T_J$ (°C)	Notes	Fax-on-Demand	Outline
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Module  
Center Tap

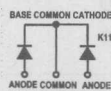
D61-6-SM



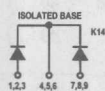
60CNQ045SM	45	60	116	0.44	40	6	200	0.85	150	2	3	7	20195	K9
61CNQ045SM	45	60	149	0.49	40	6	45	0.85	175	2	3	7	20248	
62CNQ030SM	30	60	135	0.35	27	6	280	0.85	150	2	3	7	20269	
63CNQ100SM	100	60	155	0.64	15	1	35	0.85	175	2	3	7	20223	



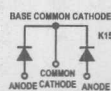
K8, K9, K10



K11, K12, K13, K17



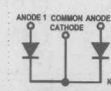
K14



K15, K16



K18



K19

2 For EAS:  $T_J = 25^\circ\text{C}$ ,  $I_{AS} = I_{AR}$ 

6 Available with optional leadforms. Refer to case outline.

8 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 10 For VFM:  $T_J = 25^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 12 Current decaying linearly to 0 in 2  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical14 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 1.5 \times V_R$  typical16 For VFM:  $T_J = 70^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

5 Available on tape and reel. Refer to case outline.

7 For VFM and IFM:  $T_J = 125^\circ\text{C}$  unless otherwise noted.9 For VFM:  $T_J = 75^\circ\text{C}$ ; for IRM  $T_J = 100^\circ\text{C}$ 11 For VFM:  $T_J = 125^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 13 Current decaying linearly to 0 in 1  $\mu\text{s}$ . Frequency limited by  $T_J$  max.  $V_A = 3 \times V_R$  typical

15 VFM rated at 160A

17 For VFM:  $T_J = 175^\circ\text{C}$ ; for IRM  $T_J = 125^\circ\text{C}$ 

INPUT

CONTROL

SWITCH

OUTPUT

Wafer Part Number	Die Part Number	Die 'A' Length/Side (in.) mm		Bond Pad 'B' Length/Side (in.) mm		Anode metallization (topside)	Process	Tray quantity	Equivalent Finished Product(s)		
SC043S040SWB	N/A	(.043)	1.1	(.036)	1.1	Ag	Standard	N/A	10BQ	11DQ	
SC043S060SWB	N/A	(.043)	1.1	(.036)	1.1	Ag	Standard	N/A	10BQ	11DQ	
SC043H100SWB	N/A	(.043)	1.1	(.036)	1.1	Ag	830	N/A	10BQ	11DQ	
SC043R100SWB	N/A	(.043)	1.1	(.036)	1.1	Ag	OR'ing	N/A	10BQ	11DQ	
SC066S040AWB	N/A	(.066)	1.68	(.059)	1.68	Al	Standard	N/A	6CWQ	30WQ	50WQ
SC066S040SWB	N/A	(.066)	1.68	(.059)	1.68	Ag	Standard	N/A	31DQ		
SC066S060AWB	N/A	(.066)	1.68	(.059)	1.68	Al	Standard	N/A	6CWQ	30WQ	50WQ
SC066S060SWB	N/A	(.066)	1.68	(.059)	1.68	Ag	Standard	N/A	31DQ		
SC066H100SWB	N/A	(.066)	1.68	(.059)	1.68	Ag	830	N/A	31DQ		
SC066H100AWB	N/A	(.066)	1.68	(.059)	1.68	Al	830	N/A	6CWQ	30WQ	50WQ
SC090S045AWB	SC090S045A	(.090)	2.29	(.070)	2.29	Al	Standard	196	15CTQ		
SC090H045AWB	SC090H045A	(.090)	2.29	(.070)	2.29	Al	830	196	12CTQ		
SC090H150AWB	SC090H150A	(.090)	2.29	(.070)	2.29	Al	830	196	10CTQ		
SC125R015SWB	SC125R015S	(.125)	2.29	(.105)	2.29	Ag	OR'ing	100	95SQ		
SC125S030AWB	SC125S030A	(.125)	2.29	(.105)	2.29	Al	Standard	100	32CTQ		
SC125S045SWB	SC125S045S	(.125)	2.29	(.105)	2.29	Ag	Standard	100	90SQ		
SC125S045AWB	SC125S045A	(.125)	2.29	(.105)	2.29	Al	Standard	100	25CTQ	30CPQ	
SC125H045AWB	SC125H045A	(.125)	2.29	(.105)	2.29	Al	830	100	10TQ	20CTQ	30CTQ
SC125H045SWB	SC125H045S	(.125)	2.29	(.105)	2.29	Ag	830	100	80SQ		
SC125S060AWB	SC125S060A	(.125)	2.29	(.105)	2.29	Al	Standard	100	30CPQ		
SC125H100SWB	SC125H100S	(.125)	2.29	(.105)	2.29	Ag	830	100	50SQ		
SC125H100AWB	SC125H100A	(.125)	2.29	(.105)	2.29	Al	830	100	8TQ	16CTQ	30CPQ
SC125H150AWB	SC125H150A	(.125)	2.29	(.105)	2.29	Al	830	100	30CPQ		
SC150R015AWB	SC150R015A	(.150)	3.81	(.130)	3.81	Al	OR'ing	49	19TQ		
SC150S045AWB	SC150S045A	(.150)	3.81	(.130)	3.81	Al	Standard	49	20TQ		
SC150H045AWB	SC150H045A	(.150)	3.81	(.130)	3.81	Al	830	49	18TQ	40CDQ	60CDQ SD241
SC175H045SWB	SC175H045S	(.175)	4.45	(.155)	4.45	Ag	830	49	30FQ	1N6391	
SC175S045AWB	SC175S045A	(.175)	4.45	(.155)	4.45	Al	Standard	49	40CPQ		
SC175S045SWB	SC175S045S	(.175)	4.45	(.155)	4.45	Ag	Standard	49	20FQ	21FQ	1N6096 SD41
SC175S060AWB	SC175S060A	(.175)	4.45	(.155)	4.45	Al	Standard	49	40CPQ		
SC175H100AWB	SC175H100A	(.175)	4.45	(.155)	4.45	Al	830	49	40CPQ		

- NOTES: 1. Wafer Part Number = Die in probed, un-cut wafer for  
 2. Die Part Number = Die in probed, waffle pack form.  
 3. All die and bond pads are square.

#### Part Number Coding Table

SC	SC=Schottky Chip		
125	die size in inches X 1000		
H	H= 830 high temperature	R=OR'ing lowest VF	S= standard voltage
045	voltage		
A	A= aluminum	S = silver	

INPUT

CONTROL

SWITCH

OUTPUT

Wafer Part Number	Die Part Number	Die 'A' Length/Side (in.) mm		Bond Pad 'B' Length/Side (in.) mm		Anode metallization (topside)	Process	Tray quantity	Equivalent Finished Product(s)
SC175H100SWB	SC175H100S	(.175)	4.45	(.155)	4.45	Ag	830	49	30FQ
SC200R015SWB	SC200R015S	(.200)	5.08	(.180)	5.08	Ag	OR'ing	36	85CNQ
SC200S030SWB	SC200S030S	(.200)	5.08	(.180)	5.08	Ag	Standard	36	62CNQ 82CNQ
SC200S030SWB	SC200S030S	(.200)	5.08	(.180)	5.08	Ag	Standard	36	55HQ 62CMQ 162CMQ
SC200S030SWB	SC200S030S	(.200)	5.08	(.180)	5.08	Ag	Standard	36	132CNQ 220CNQ 440CNQ
SC200H045SWB	SC200H045S	(.200)	5.08	(.180)	5.08	Ag	830	36	61CNQ 81CNQ 121CNQ
SC200S045SWB	SC200S045S	(.200)	5.08	(.180)	5.08	Ag	Standard	36	50HQ 51HQ SD51
SC200S045SWB	SC200S045S	(.200)	5.08	(.180)	5.08	Ag	Standard	36	60CMQ 161CMQ 60CNQ 80CNQ
SC200H045SWB	SC200H045S	(.200)	5.08	(.180)	5.08	Ag	830	36	201CNQ 301CNQ 401CNQ
SC200H045SWB	SC200H045S	(.200)	5.08	(.180)	5.08	Ag	830	36	75HQ 85HQ 61CMQ 161CMQ
SC200S045SWB	SC200S045S	(.200)	5.08	(.180)	5.08	Ag	Standard	36	120CNQ 200CNQ 400CNQ
SC200H100SWB	SC200H100S	(.200)	5.08	(.180)	5.08	Ag	830	36	63CNQ 83CNQ 203CNQ
SC200H100SWB	SC200H100S	(.200)	5.08	(.180)	5.08	Ag	830	36	60HQ 63CMQ 163CMQ
SC200H100SWB	SC200H100S	(.200)	5.08	(.180)	5.08	Ag	830	36	303CNQ 403CNQ
SC275S030SWB	SC275S030S	(.275)	6.99	(.255)	6.99	Ag	Standard	25	N/A
SC275S045SWB	SC275S045S	(.275)	6.99	(.255)	6.99	Ag	Standard	25	N/A
SC275H045SWB	SC275H045S	(.275)	6.99	(.255)	6.99	Ag	830	25	N/A
SC275H100SWB	SC275H100S	(.275)	6.99	(.255)	6.99	Ag	830	25	N/A

- NOTES: 1. Wafer Part Number = Die in probed, un-cut wafer for  
 2. Die Part Number = Die in probed, wafer pack form.  
 3. All die and bond pads are square.

#### Part Number Coding Table

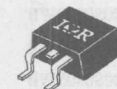
SC	SC=Schottky Chip		
125	die size in inches X 1000		
H	H= 830 high temperature	R=OR'ing lowest VF	S= standard voltage
045	voltage		
A	A= aluminum	S = silver	



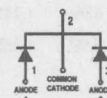
Part Number	$I_{FAV} @ T_C$			$I_R @$			$R_{\theta JC}$			Notes	Fax-on-Demand	Outline
	$V_{RRM}$ (V)	per pkg. (A)	(C)	$V_{FM} @ I_{FM}$ (A)	$V_{RWM}$ ( $\mu A$ )	Max $I_{RRM}$ (A)	Max $t_{rr}$ (mA)	per pkg. ( $^{\circ}C/W$ )				

## Discrete

### D<sup>2</sup>Pak



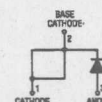
HFA04TB60S	600	4	106	1.8	3	5.2	42	5	2	7	20399	K3		
HFA08TA60CS	600	8	100	1.8	3	5.2	42	2.5	3	4	5		7	
HFA08TB60S	600	8	90	1.7	5	5	55	3.5	2	7	20341			
HFA15TB60S	600	15	100	1.7	10	6	60	1.7	2	7	20334			
HFA16TA60CS	600	16	90	1.7	5	5	55	1.75	3	4	5		7	20340
HFA25TB60S	600	25	100	1.7	20	10	75	0.83	2	4	7		20339	
HFA30TA60CS	600	30	100	1.7	10	6	60	0.85	3	4	7		20335	
HFA06TB120S	1200	6	100	3	5	4.4	26	2	2	7	20383			
HFA08TB120S	1200	8	91	3	10	4.5	28	1.7	2	7	20383			
HFA16TB120S	1200	16	98	3	20	5.8	30	0.83	2	7	20384			



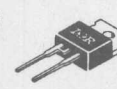
### TO-220AB



HFA08TA60C	600	8	100	1.8	3	5.2	42	2.5	2	4	5	7	J9
HFA16TA60C	600	16	90	1.7	5	5	55	1.75	2	5	7		20340
HFA30TA60C	600	30	100	1.7	10	6	60	0.85	2	4	5	7	20335
HFA08TB120	1200	8	91	3	10	4.5	28	1.7	4	5	7		20383



### TO-220AC



HFA04TB60	600	4	106	1.8	3	5.2	42	5	7	20399	J11
HFA08TB60	600	8	90	1.7	5	5	55	3.5	7	20341	
HFA15TB60	600	15	100	1.7	10	6	60	1.7	7	20334	
HFA25TB60	600	25	100	1.7	20	10	75	0.83	7	20339	
HFA06TB120	1200	6	100	3	5	4.4	26	2	7	20382	
HFA16TB120	1200	16	98	3	20	5.8	30	0.83	7	20384	

2 Available with optional leadforms. Refer to case outline for details.

4 For center tap devices, the  $I_F(AV)$  per leg is  $\frac{1}{2}$  that shown in the  $I_F(AV)$  column.

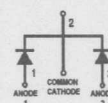
7 Reverse recovery characteristics @  $I_F = I_F(AV)$  per leg:  $dI_F/dt = 200A/\mu s$ ,  $V_R = 200V$

3 Available on tape-and-reel. Refer to case outline for details.

5 All specifications given per leg, unless otherwise noted.

Part Number	$I_{FAV} @ T_C$			$I_R @$			$R_{\theta JC}$		Notes	Fax-on-Demand	Outline
	$V_{RRM}$ (V)	per pkg. (A)	(C)	$V_{FM} @ I_{FM}$ (A)	$V_{RWM}$ ( $\mu A$ )	Max $I_{RRM}$ (A)	Max $t_{rr}$ (mA)	per pkg. ( $^{\circ}C/W$ )			

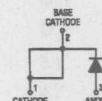
## Discrete



TO-247AC



HFA16PA60C	600	16	90	1.7	5	5	55	1.75	5	7	J13
HFA30PA60C	600	30	100	1.7	10	6	60	0.85	5	7	20336
HFA50PA60C	600	50	100	1.7	20	10	75	0.42	5	7	20337
HFA32PA120C	1200	16	98	3	20	5.8	30	0.83	5	7	20360



TO-247AC  
(modified)



HFA08PB60	600	8	90	1.7	5	5	55	3.5	5	7	J12
HFA15PB60	600	15	100	1.7	10	6	60	1.7	5	7	20340
HFA25PB60	600	25	100	1.7	20	10	75	0.83	5	7	20338
HFA06PB120	1200	6	100	3	5	4.4	26	2	5	7	20363
HFA08PB120	1200	8	91	3	10	4.5	28	1.7	5	7	20365
HFA16PB120	1200	16	98	3	20	5.8	30	0.83	5	7	20364
HFA30PB120	1200	30		3	40	8.1	37	0.55	5	7	20398

2 Available with optional leadforms. Refer to case outline for details.

4 For center tap devices, the  $I_{FAV}$  per leg is  $\frac{1}{2}$  that shown in the  $I_{FAV}$  column.

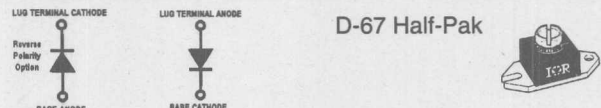
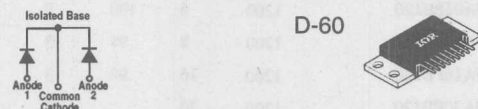
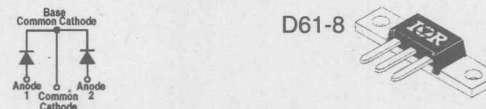
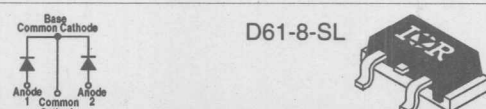
7 Reverse recovery characteristics @  $I_F = I_{FAV}$  per leg;  $dI_F/dt = 200A/\mu s$ ,  $V_R = 200V$

3 Available on tape-and-reel. Refer to case outline for details.

5 All specifications given per leg, unless otherwise noted.

Part Number	$I_{FAV} @ T_C$			$I_R @$			$R_{\theta JC}$			Notes	Fax-on-Demand	Outline
	$V_{RRM}$ (V)	per pkg. (A)	(C)	$V_{FM} @ I_{FM}$ (A)	$V_{RWM}$ ( $\mu A$ )	Max $I_{RRM}$ (A)	Max $t_{rr}$ (mA)	per pkg. ( $^{\circ}C/W$ )				

## Module

												
HFA90NH40	400	90		1.3	6	17	140	0.4	7	20468	J17	
HFA90NH40R	400	90		1.3	6	17	140	0.48	7	20469		
HFA135NH40	400	135		1.3	9	14	120	0.27	7	20465	J17	
HFA135NH40R	400	135		1.3	9	14	120	0.33	7	20455		
HFA180NH40	400	180		1.35	12	20	140	0.2	7	20452		
HFA180NH40R	400	180		1.35	12	20	140	0.24	7	20451		
HFA70NH60R	600	70		1.5	20	15	120	0.48	7	20456		
HFA70NH60	600	70		1.5	20	15	120	0.4	7	20457		
HFA105NH60	600	105		1.5	30	18	140	0.27	7	20444		
HFA105NH60R	600	105		1.5	30	18	140	0.33	7	20443		
HFA140NH60R	600	140		1.6	40	17	140	0.24	7	20446		
HFA140NH60	600	140		1.6	40	17	140	0.2	7	20447		
												
HFA75MB40C	400	75	90	1.3	3	11	100	0.5	4 7	20475	K15	
HFA60MB60C	600	60	98	1.5	10	11	100	0.5	4 7	20462		
												
HFA80NC40C	400	80		1.3	3	11	100	0.42	4 7	20473	K11	
HFA70NC60C	600	70		1.5	10	11	110	0.42	4 7	20464		
												
HFA80NC40CSL	400	80	92	1.3	3	11	100	0.42	4 7	20472	K13	
HFA70NC60CSL	600	70	94	1.5	10	11	110	0.42	4 7	20471		

2 Available with optional leadforms. Refer to case outline for details.

4 For center tap devices, the  $I_F(AV)$  per leg is 1/2 that shown in the  $I_F(AV)$  column.

7 Reverse recovery characteristics @  $I_F = I_F(AV)$  per leg:  $DIF/Dt=200A/\mu s$ ,  $V_R=200V$

3 Available on tape-and-reel. Refer to case outline for details.

5 All specifications given per leg, unless otherwise noted.

INPUT

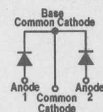
CONTROL

SWITCH

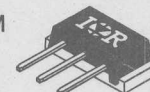
OUTPUT

Part Number	$I_{FAV} @ T_C$			$I_R @$			$R_{\theta JC}$			Notes	Fax-on-Demand	Outline
	$V_{RRM}$ (V)	per pkg. (A)	(C)	$V_{FM} @ I_{FM}$ (A)	$V_{RWM} Max I_{RRM}$ ( $\mu A$ )	(A)	$Max t_{rr}$ (mA)	per pkg. ( $^{\circ}C/W$ )				

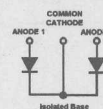
## Module - Center Tap



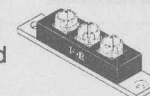
D61-8-SM



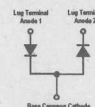
HFA80NC40CSM	400	80		1.3	3	11	100	0.42	4	7	20471	K12
HFA70NC60CSM	600	70		1.5	10	11	110	0.42	4	7	20459	



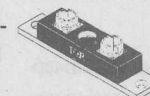
TO-244AB  
Isolated



HFA120MD40C	400	120	86	1.2	6	17	140	0.35	4	7	20466	K19
HFA160MD40C	400	160	85	1.2	9	15	110	0.28	4	7	20454	
HFA200MD40C	400	200	85	1.2	12	15	120	0.23	4	7	20450	
HFA100MD60C	600	100	91	1.4	20	15	115	0.35	4	7	20442	
HFA140MD60C	600	140	86	1.4	30	15	140	0.28	4	7		
HFA180MD60C	600	180	83	1.5	40	17	140	0.23	4	7		



TO-244AB Non-  
Isolated



HFA160NJ40C	400	160	98	1.3	6	17	140	0.2	4	7	20467	K18
HFA240NJ40C	400	240	97	1.3	9	14	120	0.14	4	7	20453	
HFA320NJ40C	400	320	98	1.35	12	20	140	0.1	4	7	20449	
HFA140NJ60C	600	140	100	1.5	20	15	120	0.2	4	7	20458	
HFA210NJ60C	600	210	100	1.5	30	18	140	0.14	4	7	20448	
HFA280NJ6C	600	280	100	1.6	40	17	140	0.1	4	7	20445	

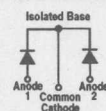
- 2 Available with optional leadforms. Refer to case outline for details.  
 4 For center tap devices, the  $I_{FAV}$  per leg is  $\frac{1}{2}$  that shown in the  $I_{FAV}$  column.  
 7 Reverse recovery characteristics @  $I_F = I_{FAV}$  per leg;  $dI_F/dt = 200A/\mu s$ ,  $V_R = 200V$

- 3 Available on tape-and-reel. Refer to case outline for details.  
 5 All specifications given per leg, unless otherwise noted.

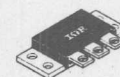


Part Number	$I_{FAV} @ T_C$			$I_R @$			$R_{\theta JC}$			Notes	Fax-on-Demand	Outline
	$V_{RRM}$ (V)	per pkg. (A)	(C)	$V_{FM} @ I_{FM}$ (A)	$V_{RWM}$ ( $\mu A$ )	Max $I_{RRM}$ (A)	Max $t_{rr}$ (mA)	per pkg. ( $^{\circ}C/W$ )				

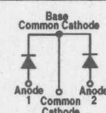
## Module - Center Tap



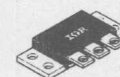
TO-249AA  
Isolated



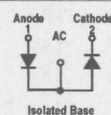
HFA75MC40C	400	75	90	1.3	3	11	100	0.5	4	7	20474	K17
HFA60MC60C	600	60	98	1.5	10	11	100	0.5	4	7	20463	



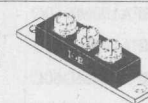
TO-249AA Non-  
Isolated



HFA80NK40C	400	80	98	1.3	3	11	100	0.4	4	7	20470	K16
HFA70NK60C	600	70	100	1.5	10	11	110	0.4	4	7	20460	



TO-244AB  
Isolated



HFA120MD40D	400	120		1.2	6	17	140	0.35	4	7	20466	J18
HFA160MD40D	400	160		1.2	9	15	110	0.28	4	7	20454	
HFA200MD40D	400	200		1.2	12	15	120	0.23	4	7	20450	
HFA100MD60D	600	100		1.4	20	15	115	0.35	4	7	20442	
HFA140MD60D	600	140		1.4	30	15	140	0.28	4	7		
HFA180MD60D	600	180		1.5	40	17	140	0.23	4	7		

2 Available with optional leadforms. Refer to case outline for details.

4 For center tap devices, the  $I_{FAV}$  per leg is  $\frac{1}{2}$  that shown in the  $I_{FAV}$  column.

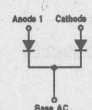
7 Reverse recovery characteristics @  $I_F = I_{FAV}$  per leg;  $dI_F/dt = 200A/\mu s$ ,  $V_R = 200V$

3 Available on tape-and-reel. Refer to case outline for details.

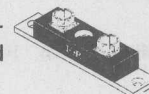
5 All specifications given per leg, unless otherwise noted.

Part Number	$I_{FAV} @ T_C$			$I_R @$		$R_{\theta JC}$		Notes	Fax-on-Demand	Outline
	$V_{RRM}$ (V)	per pkg. (A)	(C)	$V_{FM} @ I_{FM}$ (A)	$V_{RWM}$ ( $\mu A$ )	Max $I_{RRM}$ (A)	Max $t_{rr}$ (mA)			

## Module - Doubler



TO-244AB Non-Isolated



HFA160NJ40D	400	160		1.3	6	17	140	0.24	4	7	J19
HFA240NJ40D	400	240		1.3	9	14	120	0.17	4	7	
HFA320NJ40D	400	320		1.35	12	20	140	0.12	4	7	
HFA140NJ60D	600	140		1.5	20	15	120	0.24	4	7	
HFA210NJ60D	600	210		1.5	30	18	140	0.17	4	7	
HFA280NJ60D	600	280		1.6	40	17	140	0.12	4	7	

- 2 Available with optional leadforms. Refer to case outline for details.  
 4 For center tap devices, the  $I_F(AV)$  per leg is  $\frac{1}{2}$  that shown in the  $I_F(AV)$  column.  
 7 Reverse recovery characteristics @  $I_F = I_F(AV)$  per leg:  $dI_F/dt = 200A/\mu s$ ,  $V_R = 200V$

- 3 Available on tape-and-reel. Refer to case outline for details.  
 5 All specifications given per leg, unless otherwise noted.

# HEXFRED Die

International  
**IOR** Rectifier

Wafer Part Number	Die Part Number	Die 'A x B' Length/Side (in.) mm	Bond Pad 'C x D' Length/Side (in.) mm	Anode metallization (topside)	Tray quantity	Equivalent Finished Product(s)	
HF06A060ACB	N/A	(0.066x0.066) 1.68x1.68	(0.037x0.037) 0.94x0.94	Aluminum	N/A	HFA04TB60	HFA08TA60C
HF10A060ACB	HF10A060ACD	(0.090X0.090) 2.29x2.29	(0.062x0.062) 1.58x1.58	Aluminum	196	HFA08PB60 HFA16TA60C	HFA16PA60C HFA08TB60
HF20A060ACB	HF20A060ACD	(0.107x0.130) 2.72x3.30	(0.056x0.080) 1.42x2.03	Aluminum	100	n/a	
HF20C120ACB	HF20C120ACD	(0.107x0.130) 2.72x3.30	(0.056x0.080) 1.42x2.03	Aluminum	100	HFA06PB120 HFA12PA120C	HFA06TB120 HFA12TA120C
HF30A060ACB	HF30A060ACD	(0.115x0.155) 2.92x3.94	(0.064x0.104) 1.63x2.64	Aluminum	100	HFA15PB60 HFA30PA60C	HFA15TB60 HFA30TA60C
HF30C120ACB	HF30C120ACD	(0.115x0.155) 2.92x3.94	(0.064x0.104) 1.63x2.64	Aluminum	100	HFA08PB120 HFA16PA120C	HFA08TB120 HFA16TA120C
HF40A060ACB	HF40A060ACD	(0.169x0.220) 4.29x5.59	(0.117x0.169) 2.97x4.29	Aluminum	35	HFA25PB60 HFA50PA60C	HFA25TB60
HF40C120ACB	HF40C120ACD	(0.169x0.220) 4.29x5.59	(0.117x0.169) 2.97x4.29	Aluminum	35	HFA16PB120 HFA32PA120C	HFA16TB120
HF50C120ACB	HF50C120ACD	(0.257x0.275)	(0.206x0.224)	Aluminum	25	HFA30PB120	

NOTES: 1. Wafer Part Number = Die in probed, un-cut wafer form.  
2. Die Part Number = Die in probed, wafile pack form.

## Part Number Coding Table

HF HF=HEXFRED

10 die size

060 voltage X 10

A A=Aluminum

CB CB=probed, unsawn wafer  
CD=chip packed

INPUT

CONTROL

SWITCH

OUTPUT

HEXFRED Die Page G-24

# UltraFast™ Recovery Diodes

International  
**IOR** Rectifier

Part Number	$V_{RRM}$ (V)	$I_{FAV} @ T_C$ (A)	$I_{FSM} @ 60 \text{ Hz}$ (A)	$V_{FM} @ I_{(AV)}$ (V)	Max $t_{rr}$ (nS)	$R_{\theta JC}$ (°C/W)	Notes	Fax-on-Demand	Outline
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SMB



10BF10	100	1	120	30	0.95	35	25	3	6
10BF20	200	1	120	30	0.95	35	25	3	6
10BF40	400	1	75	30	1.3	50	30	3	6
10BF60	600	1	75	30	1.5	100	30	3	6
10BF80	800	1	75	30	1.7	100	30	3	6

J2

SMC



30BF10	100	3	120	60	0.95	35	12	3	6
30BF20	200	3	120	60	0.95	35	12	3	6
30BF40	400	3	75	60	1.4	50	15	3	6
30BF60	600	3	75	60	1.5	100	15	3	6
30BF80	800	3	75	60	1.7	100	15	3	6

J3

2 Available with optional leadforms. Refer to case outline for details.

4 For center tap devices, the  $I_{F(AV)}$  per leg is ½ that shown in the  $I_{F(AV)}$  column.

7 Reverse recovery characteristics @  $I_F = I_{F(AV)}$  per leg:  $dI_F/dt = 200A/\mu s$ ,  $V_R = 200V$

3 Available on tape-and-reel. Refer to case outline for details.

5 All specifications given per leg, unless otherwise noted.

INPUT

CONTROL

SWITCH

OUTPUT

UltraFast Recovery Diodes Page G-25









# Fast Recovery Diodes

International  
**IOR** Rectifier

## Fast Recovery Diodes in plastic packages: D-Pak, D<sup>2</sup> Pak, TO-220 and TO-247 Fast Series 600V, 60ns

	8A	20A	20A	30A	40A	60A	80A
							
<b>Voltage Grade</b>	D-Pak	D <sup>2</sup> -Pak	TO-220AC (2-pin)	TO-247 (3-pin)	TO-247 (2-pin)	TO-247 (2-pin)	TO-247 (3-pin)
200	8EWF02S	20ETF02S	20ETF02	30CPF02	40EPF02	60EPF02	80EPF02
400	8EWF04S	20ETF04S	20ETF04	30CPF04	40EPF04	60EPF04	80EPF04
600	8EWF06S	20ETF06S	20ETF06	30CPF06	40EPF06	60EPF06	80EPF06

## Fast Recovery Diodes in plastic packages: D-Pak, D<sup>2</sup> Pak, TO-220 and TO-247 HV Fast Series 1200V, 110ns

	8A	20A	20A	40A	60A	80A
						
<b>Voltage Grade</b>	D-Pak	D <sup>2</sup> -Pak	TO-220AC (2-pin)	TO-247 (2-pin)	TO-247 (2-pin)	TO-247 (3-pin)
1000	8EWF10S	20ETF10S	20ETF10	40EPF10	60EPF10	80EPF10
1200	8EWF02S	20ETF12S	20ETF12	40EPF12	60EPF12	80EPF12

INPUT

CONTROL

SWITCH

OUTPUT

UltraFast Recovery Diodes Page G-26

# Fast Recovery Diodes

International  
IOR Rectifier

Part Number	$V_{RRM}$			$I_{FSM}$		$V_{FM}^{\oplus}$ $\pi \times I_F(AV)$	$t_{rr}$	$R_{\theta JC}$			
	(V)	(A)	(C)	50 Hz	60 Hz				Notes	Circuit	Outline

D-Pak



20ETF02S	200	20	97	250	260	1.3	160	0.9	1	1.2	
20ETF04S	400	20	97	250	260	1.3	160	0.9		1.2	
20ETF06S	600	20	97	250	260	1.3	160	0.9		1.2	

H5

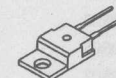
D<sup>2</sup>Pak



20ETF02	200	20	97	250	260	1.3	160	0.9	1	1.2	
20ETF04	400	20	97	250	260	1.3	160	0.9	1	1.2	
20ETF06	600	20	97	250	260	1.3	160	0.9		1.2	

J4

TO-220AC



30EPF02	200	30	98	300	315	1.41	160	0.8		1.2	
30EPF04	400	30	98	300	315	1.41	160	0.8		1.2	
30EPF06	600	30	98	300	315	1.41	160	0.8		1.2	

J10

TO-247 (Mod)



40EPF02	200	40	75	400	420	1.25	160	0.6		1.4	
40EPF04	400	40	75	400	420	1.25	160	0.6		1.4	
40EPF06	600	40	75	400	420	1.25	160	0.6		1.6	
60EPF02	200	60	115	700	730	1.3	160	0.35		1.6	
60EPF04	400	60	115	700	730	1.3	160	0.35		1.6	
60EPF06	600	60	115	700	730	1.3	160	0.35		1.6	

J12

TO-247AC (TO-3P)



30CPF02	200	30	98	300	315	1.41	160	0.8	1.2	2 Anodes	
30CPF04	400	30	98	300	315	1.41	160	0.8	1.2	2 Anodes	
30CPF06	600	30	98	300	315	1.41	160	0.8	1.2	2 Anodes	
80EPF02	200	80	115	800	850	1.2	160	0.32	1.8	2 Anodes	
80EPF04	400	80	115	800	850	1.2	160	0.32	1.8	2 Anodes	
80EPF06	600	80	115	800	850	1.2	160	0.32	1.8	2 Anodes	

J12A

1 Available on tape and reel. Refer to case outline.

1.2 IFM=20A, -di/dt=100A/μs

1.4 IFM=40A, -di/dt=100A/μs

1.6 IFM=60A, -di/dt=100A/μs

INPUT

CONTROL

SWITCH

OUTPUT

Fast Recovery Diodes Page G-27

# Fast Recovery Diodes

International  
TOR Rectifier

Part Number	$V_{RRM}$	$I_{FAV}$	$T_C$	$I_{FSM}$		$V_{FM}^{\oplus}$	$\pi \times I_F(AV)$	$t_{rr}$	$R_{\theta JC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(C)	50 Hz	60 Hz	(V)	(nS)	(°C/W)				

## Discrete

DO-203AA (DO-4)



1N3879	50	6	100	72	75	1.40	300	2.5	2	5	3	4	20030	R6
1N3880	100	6	100	72	75	1.40	300	2.5	2	5	3	4	20030	
1N3881	200	6	100	72	75	1.40	300	2.5	2	5	3	4	20030	
1N3882	300	6	100	72	75	1.40	300	2.5	2	5	3	4	20030	
1N3883	400	6	100	72	75	1.40	300	2.5	2	5	3	4	20030	
6FL10S02	100	6	100	110	115	1.40	200	2.50	2	5	3	4	20030	
6FL10S05	100	6	100	110	115	1.40	500	2.50	2	5	3	4	20030	
6FL20S02	200	6	100	110	115	1.40	200	2.50	2	5	3	4	20030	
6FL20S05	200	6	100	110	115	1.40	500	2.50	2	5	3	4	20030	
6FL40S02	400	6	100	110	115	1.40	200	2.50	2	5	3	4	20030	
6FL40S05	400	6	100	110	115	1.40	500	2.50	2	5	3	4	20030	
6FL60S02	600	6	100	110	115	1.40	200	2.50	2	5	3	4	20030	
6FL60S05	600	6	100	110	115	1.40	500	2.50	2	5	3	4	20030	
6FL80S05	800	6	100	110	115	1.40	500	2.50	2	5	3	4	20030	
6FL100S05	1000	6	100	110	115	1.40	500	2.50	2	5	3	4	20030	
12FL10S05	100	12	100	145	150	1.40	500	2.0	2	5	3	4	20030	
12FL10S02	100	12	100	145	150	1.40	200	2.0	2	5	3	4	20030	
12FL20S05	200	12	100	145	150	1.40	500	2.0	2	5	3	4	20030	
12FL20S02	200	12	100	145	150	1.40	200	2.0	2	5	3	4	20030	
12FL40S02	400	12	100	145	150	1.40	200	2.0	2	5	3	4	20030	
12FL40S05	400	12	100	145	150	1.40	500	2.0	2	5	3	4	20030	
12FL60S02	600	12	100	145	150	1.40	200	2.0	2	5	3	4	20030	
12FL60S05	600	12	100	145	150	1.40	500	2.0	2	5	3	4	20030	
12FL80S05	800	12	100	145	150	1.40	500	2.0	2	5	3	4	20030	
12FL100S05	1000	12	100	145	150	1.40	500	2.0	2	5	3	4	20030	
1N3889	50	12	100	145	150	1.40	300	2.0	2	5	3	4	20030	
1N3890	100	12	100	145	150	1.40	300	2.0	2	5	3	4	20030	
1N3891	200	12	100	145	150	1.40	300	2.0	2	5	3	4	20030	
1N3892	300	12	100	145	150	1.40	300	2.0	2	5	3	4	20030	
1N3893	400	12	100	145	150	1.40	300	2.0	2	5	3	4	20030	
16FL10S05	100	16	100	180	190	1.40	500	1.6	2	5	3	4	20030	
16FL10S02	100	16	100	180	190	1.40	200	1.6	2	5	3	4	20030	
16FL20S05	200	16	100	180	190	1.40	500	1.6	2	5	3	4	20030	

2 For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$

3  $t_{rr}$  conditions:  $T_J = 25^\circ\text{C}$ ,  $I_{FM} = \pi \times I_F(AV)$ ,  $di/dt = 25 \text{ A}/\mu\text{s}$ .

4 VFM measured at  $T_J = 25^\circ\text{C}$

5 Cathode to stud. To order anode to stud, add 'R' to part number (e.g. 1RD3899R, 40HFLR10502)

6 Available with metric stud. To order, add M to part number (e.g. 40FL10S02M)

7 VFM conditions:  $I_{FM} = 30 \text{ Apk}$ ,  $T_J = 25^\circ\text{C}$

8 VFM conditions:  $I_{FM} = 60 \text{ Apk}$ ,  $T_J = 25^\circ\text{C}$

9  $I_F(AV)$  conditions:  $180^\circ\text{C}$  conduction, half sine

10  $T_J = 25^\circ\text{C}$ ,  $I_F = 1 \text{ A}$ ,  $-di/dt = 100 \text{ A}/\mu\text{s}$ ,  $V_R = 30 \text{ V}$

11 For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.}$

12 Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (e.g. SD103R04S1C)

13 Available with metric stud. To order, change P to M in part number (e.g. SD103N04S10MV)

14 Available with flag lead. To order, add B to part number, e.g. (e.g. SD103N04S10PBV)

15 For  $t_{rr}$ :  $T_J = 25^\circ\text{C}$

INPUT

CONTROL

SWITCH

OUTPUT

Fast Recovery Diodes Page G-28

# Fast Recovery Diodes

International  
IOR Rectifier

Part Number	$V_{RRM}$	$I_{FAV} @ T_C$		$I_{FSM}$		$V_{FM} @$	$\pi \times I_{F(AV)}$	$t_{rr}$	$R_{\theta JC}$	Notes				Fax-on-Demand	Outline
	(V)	(A)	(C)	50 Hz	60Hz	(V)	(nS)	(°C/W)							
16FL20S02	200	16	100	180	190	1.40	200	1.6	2	5	3	4	20030	R6	
16FL40S02	400	16	100	180	190	1.40	200	1.6	2	5	3	4	20030		
16FL40S05	400	16	100	180	190	1.40	500	1.6	2	5	3	4	20030		
16FL60S05	600	16	100	180	190	1.40	500	1.6	2	5	3	4	20030		
16FL60S02	600	16	100	180	190	1.40	200	1.6	2	5	3	4	20030		
16FL80S05	800	16	100	180	190	1.40	500	1.6	2	5	3	4	20030		
16FL100S05	1000	16	100	180	190	1.40	500	1.6	2	5	3	4	20030		

DO-203AB (DO-5)



IRD3899	50	20	100	240	250	1.65	350	0.60	2	3	4	5	6	20092	R7		
IRD3900	100	20	100	240	250	1.65	350	0.60	2	3	4	5	6	20092			
IRD3901	200	20	100	240	250	1.65	350	0.60	2	3	4	5	6	20092			
IRD3902	300	20	100	240	250	1.65	350	0.60	2	3	4	5	6	20092			
IRD3903	400	20	100	240	250	1.65	350	0.60	2	3	4	5	6	20092			
30HFU-100	100	30	91	400	420	1.45	60	0.6	2	3	5	6	7	9		10	82021
30HFU-200	200	30	91	400	420	1.45	60	0.6	2	3	5	6	7	9		10	82021
30HFU-300	300	30	91	400	420	1.45	60	0.6	2	3	5	6	7	9		10	82021
30HFU-400	400	30	91	400	420	1.45	60	0.6	2	3	5	6	7	9		10	82021
30HFU-500	500	30	91	400	420	1.45	60	0.6	2	3	5	6	7	9		10	82021
30HFU-600	600	30	91	400	420	1.45	60	0.6	2	3	5	6	7	9		10	82021
IRD3909	50	30	100	285	300	1.80	350	0.46	2	3	4	5	6	20092			
IRD3910	100	30	100	285	300	1.80	350	0.46	2	3	4	5	6	20092			
IRD3911	200	30	100	285	300	1.80	350	0.46	2	3	4	5	6	20092			
IRD3912	300	30	100	285	300	1.80	350	0.46	2	3	4	5	6	20092			
IRD3913	400	30	100	285	300	1.80	350	0.46	2	3	4	5	6	20092			
40HFL10S02	100	40	75	400	420	1.95	200	0.6	2	3	4	5	6	20093			
40HFL10S05	100	40	75	400	420	1.95	500	0.6	2	3	4	5	6	20093			
40HFL20S05	200	40	75	400	420	1.95	500	0.6	2	3	4	5	6	20093			
40HFL20S02	200	40	75	400	420	1.95	200	0.6	2	3	4	5	6	20093			
40HFL40S05	400	40	75	400	420	1.95	500	0.6	2	3	4	5	6	20093			
40HFL40S02	400	40	75	400	420	1.95	200	0.6	2	3	4	5	6	20093			
40HFL60S05	600	40	75	400	420	1.95	500	0.6	2	3	4	5	6	20093			
40HFL60S02	600	40	75	400	420	1.95	200	0.6	2	3	4	5	6	20093			
40HFL80S05	800	40	75	400	420	1.95	500	0.6	2	3	4	5	6	20093			
40HFL100S05	1000	40	75	400	420	1.95	500	0.6	2	3	4	5	6	20093			
60HFU-100	100	60	82	700	730	1.50	60	0.36	2	3	5	6	8	9	10	80061	

2 For Ifsm: 100% VRRM reapplied, Tj=Tj max.=125°C

3 trr conditions: Tj = 25°C, IFM = pi X rated IF(AV), diF/dt = 25 A/μs.

4 VFM measured at Tj=25°C

5 Cathode to stud. To order anode to stud, add 'R' to part number (e.g. IRD3899R, 40HFLR10S02)

6 Available with metric stud. To order, add M to part number (e.g. 40FL10S02M)

7 VFM conditions: IFM = 30Apk, Tj=25°C

8 VFM conditions: IFM = 60Apk, Tj=25°C

9 IF(AV) conditions: 180°C conduction, half sine

10 Tj = 25°C, IF=1A, -di/dt = 100A/μs, VR=30V

11 For Ifsm: 100% VRRM reapplied, Tj=Tj max.

12 Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (e.g. SD103R04S1C)

13 Available with metric stud. To order, change P to M in part number (e.g. SD103N04S10MV)

14 Available with flag lead. To order, add B to part number, e.g. (e.g. SD103N04S10PBV)

15 For trr: Tj=25°C

INPUT

CONTROL

SWITCH

OUTPUT

Fast Recovery Diodes Page G-29

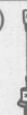


# Fast Recovery Diodes

International  
**IOR** Rectifier

Part Number	V <sub>RRM</sub>	I <sub>FAV</sub> @ T <sub>C</sub>		I <sub>FSM</sub>		V <sub>FM</sub> <sup>9</sup>	t <sub>rr</sub>	R <sub>θJC</sub>	Notes										Fax-on-Demand	Outline
	(V)	(A)	(C)	50 Hz	60 Hz	π X I <sub>F(AV)</sub>														
60HFU-200	200	60	82	700	730	1.50	60	0.36	2	3	5	6	8	9	10	80061	R7			
60HFU-300	300	60	82	700	730	1.50	60	0.36	2	3	5	6	8	9	10	80061				
60HFU-400	400	60	82	700	730	1.50	60	0.36	2	3	5	6	8	9	10	80061				
60HFU-500	500	60	82	700	730	1.50	60	0.36	2	3	5	6	8	9	10	80061				
60HFU-600	600	60	82	700	730	1.50	60	0.36	2	3	5	6	8	9	10	80061				
70HFL10S05	100	70	75	700	730	1.85	500	0.36	2	3	5	6	6				20093			
70HFL10S02	100	70	75	700	730	1.85	200	0.36	2	3	5	6	6				20093			
70HFL20S05	200	70	75	700	730	1.85	500	0.36	2	3	5	6	6				20093			
70HFL20S02	200	70	75	700	730	1.85	200	0.36	2	3	5	6	6				20093			
70HFL40S02	400	70	75	700	730	1.85	200	0.36	2	3	5	6	6				20093			
70HFL40S05	400	70	75	700	730	1.85	500	0.36	2	3	5	6	6				20093			
70HFL60S05	600	70	75	700	730	1.85	500	0.36	2	3	5	6	6				20093			
70HFL60S02	600	70	75	700	730	1.85	200	0.36	2	3	5	6	6				20093			
70HFL80S05	800	70	75	700	730	1.85	500	0.36	2	3	5	6	6				20093			
70HFL100S05	1000	70	75	700	730	1.85	500	0.36	2	3	5	6	6				20093			
85HFL10S02	100	85	75	1100	1150	1.75	200	0.30	2	3	4	5	6				20093			
85HFL10S05	100	85	75	1100	1150	1.75	500	0.30	2	3	4	5	6				20093			
85HFL20S02	200	85	75	1100	1150	1.75	200	0.30	2	3	4	5	6				20093			
85HFL20S05	200	85	75	1100	1150	1.75	500	0.30	2	3	4	5	6				20093			
85HFL40S05	400	85	75	1100	1150	1.75	500	0.30	2	3	4	5	6				20093			
85HFL40S02	400	85	75	1100	1150	1.75	200	0.30	2	3	4	5	6				20093			
85HFL60S05	600	85	75	1100	1150	1.75	500	0.30	2	3	4	5	6				20093			
85HFL60S02	600	85	75	1100	1150	1.75	200	0.30	2	3	4	5	6				20093			
85HFL80S05	800	85	75	1100	1150	1.75	500	0.30	2	3	4	5	6				20093			
85HFL100S05	1000	85	75	1100	1150	1.75	500	0.36	2	3	4	5	6				20093			

DO-205AC (DO-30)



SD103N04S10PV	400	110	85	3000	3140	2.23	1000	0.16	2	4	12	13	14	15			82062	R11
SD103N08S10PV	800	110	85	3000	3140	2.23	1000	0.16	2	4	12	13	14	15			82062	
SD103N10S10PV	1000	110	85	3000	3140	2.23	1000	0.16	2	4	12	13	14	15			82062	
SD103N12S15PV	1200	110	85	3000	3140	2.23	1500	0.16	2	4	12	13	14	15			82062	
SD103N14S15PV	1400	110	85	3000	3140	2.23	1500	0.16	2	4	12	13	14	15			82062	
SD103N16S15PV	1600	110	85	3000	3140	2.23	1500	0.16	2	4	12	13	14	15			82062	
SD103N20S20PC	2000	110	85	3000	3140	2.23	2000	0.16	2	4	12	13	14	15			82062	R12
SD103N25S20PC	2500	110	85	3000	3140	2.23	2000	0.16	2	4	12	13	14	15			82062	
SD153N04S10PV	400	150	85	3600	3770	1.55	1000	0.16	2	4	12	13	14	15			82063	R11

2 For Ifsm: 100% VRRM reapplied, T<sub>J</sub>=T<sub>J</sub> max.=125°C

3 trr conditions: T<sub>J</sub> = 25°C, IFM = π X rated IF(AV), diF/dt = 25 A/μs.

4 VFM measured at T<sub>J</sub>= 25°C

5 Cathode to stud. To order anode to stud, add 'R' to part number (e.g. IRD3899R,40HFLR10502)

6 Available with metric stud. To order, add M to part number (e.g. 40FL10S02M)

7 VFM conditions: IFM = 30A<sub>pk</sub>, T<sub>J</sub>=25°C

8 VFM conditions: IFM = 60A<sub>pk</sub>, T<sub>J</sub>=25°C

9 IF(AV) conditions: 180°C conduction, half sine

10 T<sub>J</sub> = 25°C, IF=1A, -di/dt = 100A/μs, VR=30V

11 For Ifsm: 100% VRRM reapplied, T<sub>J</sub>=T<sub>J</sub> max.

12 Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (e.g. SD103R04S1C)

13 Available with metric stud. To order, change P to M in part number (e.g. SD103N04S10MV)

14 Available with flag lead. To order, add B to part number, e.g. (e.g. SD103N04S10PBV)

15 For trr: T<sub>J</sub>=25°C

INPUT

CONTROL

SWITCH

OUTPUT

Fast Recovery Diodes Page G-30

# Fast Recovery Diodes

International  
IOR Rectifier

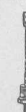
Part Number	$V_{RRM}$ (V)	$I_{FAV} @ T_C$		$I_{FSM}$		$V_{FM} @$ $\pi \times I_{FAV}$ (V)	$t_{rr}$ (nS)	$R_{\theta JC}$ (°C/W)	Notes							Fax-on-Demand	Outline
		(A)	(C)	50 Hz	60Hz												
SD153N08S10PV	800	150	85	3600	3770	1.55	1000	0.16	2	4	12	13	14	15		82063	R11
SD153N10S10PV	1000	150	85	3600	3770	1.55	1000	0.16	2	4	12	13	14	15		82063	
SD153N12S15PV	1200	150	85	3600	3770	1.55	1500	0.16	2	4	12	13	14	15		82063	
SD153N14S15PV	1400	150	85	3600	3770	1.55	1500	0.16	2	4	12	13	14	15		82063	
SD153N16S15PV	1600	150	85	3600	3770	1.55	1500	0.16	2	4	12	13	14	15		82063	

DO-205AB (DO-9)



SD203N04S10PV	400	200	85	4200	4400	1.65	1000	0.115	2	4	12	13	14	15		82064	R24	
SD203N08S10PV	800	200	85	4200	4400	1.65	1000	0.115	2	4	12	13	14	15		82064		
SD203N10S10PV	1000	200	85	4200	4400	1.65	1000	0.115	2	4	12	13	14	15		82064		
SD203N12S15PV	1200	200	85	4200	4400	1.65	1500	0.115	2	4	12	13	14	15		82064		
SD203N14S15PV	1400	200	85	4200	4400	1.65	1500	0.115	2	4	12	13	14	15		82064		
SD203N16S15PV	1600	200	85	4200	4400	1.65	1500	0.115	2	4	12	13	14	15		82064	R23	
SD203N20S20PC	2000	200	85	4200	4400	1.65	2000	0.115	2	4	12	13	14	15		82064		
SD203N25S20PC	2500	200	85	4200	4400	1.65	2000	0.115	2	4	12	13	14	15		82064		
251UL80S10	800	250	70	3350	3500	1.78	1000	0.15	2	4	5	15	16		20491	R22		
251UL100S10	1000	250	70	3350	3500	1.78	1000	0.15	2	4	5	15	16		20491			
251UL120S15	1200	250	70	3350	3500	1.78	1500	0.15	2	4	5	15	16		20491			
251UL140S15	1400	250	70	3350	3500	1.78	1500	0.15	2	4	5	15	16		20491			
251UL160S15	1600	250	70	3350	3500	1.78	1500	0.15	2	4	5	15	16		20491			
251UL180S20	1800	250	70	3350	3500	1.78	2000	0.15	2	4	5		16		20491			
251UL200S20	2000	250	70	3350	3500	1.78	2000	0.15	2	4	5		16		20491			
251UL250S20	2500	250	70	3350	3500	1.78	2000	0.15	2	4	5		16		20491			
SD253N04S15PV	400	250	85	4500	4710	1.38	1500	0.115	2	4	12	13	14	15			82065	R24
SD253N08S15PV	800	250	85	4500	4710	1.38	1500	0.115	2	4	12	13	14	15			82065	
SD253N10S15PV	1000	250	85	4500	4710	1.38	1500	0.115	2	4	12	13	14	15		82065		
SD253N12S20PV	1200	250	85	4500	4710	1.38	2000	0.115	2	4	12	13	14	15		82065		
SD253N14S20PV	1400	250	85	4500	4710	1.38	2000	0.115	2	4	12	13	14	15		82065		
SD253N16S20PV	1600	250	85	4500	4710	1.38	2000	0.115	2	4	12	13	14	15		82065		

B-8



SD233N30S50PC	3000	235	60	4630	4840	3.20	5000	0.10	2	4	12	13	14	15			R25
SD233N36S50PC	3600	235	60	4630	4840	3.20	5000	0.10	2	4	12	13	14	15			

2 For Ifsm: 100% VRRM reapplied, Tj=Tj max.=125°C

3 trr conditions: Tj = 25°C, IFM =  $\pi \times$  rated IF(AV), di/dt = 25 A/ $\mu$ s.

4 VFM measured at Tj= 25°C

5 Cathode to stud. To order anode to stud, add 'R' to part number (e.g. IRD3899R,40HFLR10502)

6 Available with metric stud. To order, add M to part number (e.g. 40FL10S02M)

7 VFM conditions: IFM = 30Apk, Tj=25°C

8 VFM conditions: IFM = 60Apk, Tj=25°C

9 IF(AV) conditions: 180°C conduction, half sine

10 Tj = 25°C, IF=1A, -di/dt = 100A/ $\mu$ s, VR=30V

11 For Ifsm: 100% VRRM reapplied, Tj=Tj max.

12 Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (e.g. SD103R04S1C)

13 Available with metric stud. To order, change P to M in part number (e.g. SD103N04S10MV)

14 Available with flag lead. To order, add B to part number, e.g. (e.g. SD103N04S10PBV)

15 For trr: Tj=25°C

INPUT

CONTROL

SWITCH

OUTPUT

Fast Recovery Diodes Page G-31

# Fast Recovery Diodes

International  
IOR Rectifier

Part Number	V <sub>RRM</sub>	I <sub>FAV</sub> @ T <sub>C</sub>		I <sub>FSM</sub>		V <sub>FM</sub> @	t <sub>rr</sub>	R <sub>θJC</sub>											Fax-on-Demand	Outline	
	(V)	(A)	(C)	50 Hz	60Hz	π X I <sub>F(AV)</sub>			(°C/W)	Notes											
SD233N40S50PC	4000	235	60	4630	4840	3.20	5000	0.10	2	4	12	13	14	15							R25
SD233N45S50PC	4500	235	60	4630	4840	3.20	5000	0.10	2	4	12	13	14	15							
SD453N12S20PC	1200	400	70	7820	8190	2.20	2000	0.10	2	4	12	13	15							82076	
SD453N16S20PC	1600	400	70	7820	8190	2.20	2000	0.10	2	4	12	13	15							82076	
SD453N20S20PC	2000	400	70	7820	8190	2.20	2000	0.10	2	4	12	13	15							82076	
SD453N25S20PC	2500	400	70	7820	8190	2.20	2000	0.10	2	4	12	13	15							82076	
SD453N12S30PC	1200	450	70	8070	8450	1.85	3000	0.10	2	4	12	13	15							82076	
SD453N16S30PC	1600	450	70	8070	8450	1.85	3000	0.10	2	4	12	13	15							82076	
SD453N20S30PC	2000	450	70	8070	8450	1.85	3000	0.10	2	4	12	13	15							82076	
SD453N25S30PC	2500	450	70	8070	8450	1.85	3000	0.10	2	4	12	13	15							82076	

DO-200AA (A-Puk)



SD303C04S10C	400	350	55	4850	5080	2.26	1000	0.08	4	11	12								82066	R26
SD303C08S10C	800	350	55	4850	5080	2.26	1000	0.08	4	11	12								82066	
SD303C10S10C	1000	350	55	4850	5080	2.26	1000	0.08	4	11	12								82066	
SD303C12S15C	1200	350	55	4850	5080	2.26	1500	0.08	4	11	12								82066	
SD303C14S15C	1400	350	55	4850	5080	2.26	1500	0.08	4	11	12								82066	
SD303C16S15C	1600	350	55	4850	5080	2.26	1500	0.08	4	11	12								82066	
SD303C20S20C	2000	350	55	4850	5080	2.26	2000	0.08	4	11	12								82066	
SD303C25S20C	2500	350	55	4850	5080	2.26	2000	0.08	4	11	12								82066	
SD403C04S10C	400	430	55	5200	5445	1.83	1000	0.08	4	11	12								82067	
SD403C08S10C	800	430	55	5200	5445	1.83	1000	0.08	4	11	12								82067	
SD403C10S10C	1000	430	55	5200	5445	1.83	1000	0.08	4	11	12								82067	
SD403C12S15C	1200	430	55	5200	5445	1.83	1500	0.08	4	11	12								82067	
SD403C14S15C	1400	430	55	5200	5445	1.83	1500	0.08	4	11	12								82067	
SD403C16S15C	1600	430	55	5200	5445	1.83	1500	0.08	4	11	12								82067	

B-43 (E-Puk)



SD603C04S10C	400	600	55	7000	7330	2.97	1000	0.038	4	11	12								82068	R27
SD603C08S10C	800	600	55	7000	7330	2.97	1000	0.038	4	11	12								82068	
SD603C10S10C	1000	600	55	7000	7330	2.97	1000	0.038	4	11	12								82068	
SD603C12S15C	1200	600	55	7000	7330	2.97	1500	0.038	4	11	12								82068	
SD603C14S15C	1400	600	55	7000	7330	2.97	1500	0.038	4	11	12								82068	

2 For Ifsm: 100% VRRM reapplied, T<sub>J</sub>=T<sub>J</sub> max.=125°C

3 t<sub>rr</sub> conditions: T<sub>J</sub> = 25°C, IFM = π X rated IF(AV), dI/dt = 25 A/μs.

4 VFM measured at T<sub>J</sub> = 25°C

5 Cathode to stud. To order anode to stud, add 'R' to part number (e.g. IRD3899R, 40HFLR10502)

6 Available with metric stud. To order, add M to part number (e.g. 40FL10S02M)

7 VFM conditions: IFM = 30Apk, T<sub>J</sub>=25°C

8 VFM conditions: IFM = 60Apk, T<sub>J</sub>=25°C

9 IF(AV) conditions: 180°C conduction, half sine

10 T<sub>J</sub> = 25°C, IF=1A, -di/dt = 100A/μs, VR=30V

11 For Ifsm: 100% VRRM reapplied, T<sub>J</sub>=T<sub>J</sub> max.

12 Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (e.g. SD103R04S1C)

13 Available with metric stud. To order, change P to M in part number (e.g. SD103N04S10MV)

14 Available with flag lead. To order, add B to part number, e.g. (e.g. SD103N04S10PBV)

15 For t<sub>rr</sub>: T<sub>J</sub>=25°C

INPUT

CONTROL

SWITCH

OUTPUT

# Fast Recovery Diodes

International  
IOR Rectifier

Part Number	V <sub>RRM</sub> (V)	I <sub>FAV</sub> @ T <sub>C</sub>		I <sub>FSM</sub>		V <sub>FM</sub> @ π X I <sub>F(AV)</sub>	t <sub>rr</sub> (nS)	R <sub>θJC</sub> (°C/W)	Notes			Fax-on-Demand	Outline
		(A)	(C)	50 Hz	60 Hz								
SD603C16S15C	1600	600	55	7000	7330	2.97	1500	0.038	4	11	12	82068	R27
SD603C20S20C	2000	600	55	7000	7330	2.97	2000	0.038	4	11	12	82068	
SD603C22S20C	2200	600	55	7000	7330	2.97	2000	0.038	4	11	12	82068	
SD823C12S20C	1200	810	55	7820	8190	2.20	2000	0.038	11	15	19	82074	
SD823C16S20C	1600	810	55	7820	8190	2.20	2000	0.038	11	15	19	82074	
SD823C20S20C	2000	810	55	7820	8190	2.20	2000	0.038	11	15	19	82074	
SD823C25S20C	2500	810	55	7820	8190	2.20	2000	0.038	11	15	19	82074	
SD803C04S10C	400	845	55	9500	9945	1.89	1000	0.038	4	11	12	82069	
SD803C08S10C	800	845	55	9500	9945	1.89	1000	0.038	4	11	12	82069	
SD803C10S10C	1000	845	55	9500	9945	1.89	1000	0.038	4	11	12	82069	
SD803C12S15C	1200	845	55	9500	9945	1.89	1500	0.038	4	11	12	82069	
SD803C14S15C	1400	845	55	9500	9945	1.89	1500	0.038	4	11	12	82069	
SD803C16S15C	1600	845	55	9500	9945	1.89	1500	0.038	4	11	12	82069	
SD823C12S30C	1200	910	55	8070	8450	1.85	3000	0.038	11	15	19	82074	
SD823C16S30C	1600	910	55	8070	8450	1.85	3000	0.038	11	15	19	82074	
SD823C20S30C	2000	910	55	8070	8450	1.85	3000	0.038	11	15	19	82074	
SD823C25S30C	2500	910	55	8070	8450	1.85	3000	0.038	11	15	19	82074	

DO-200AB (B-Puk)



SD263C30S50L	3000	375	55	4630	4850	3.20	5000	0.05	11	15	18	19	80071	R28
SD263C36S50L	3600	375	55	4630	4850	3.20	5000	0.05	11	15	18	19	80071	
SD263C40S50L	4000	375	55	4630	4850	3.20	5000	0.05	11	15	18	19	80071	
SD263C45S50L	4500	375	55	4630	4850	3.20	5000	0.05	11	15	18	19	80071	
SD553C30S50L	3000	560	55	10100	10570	3.24	5000	0.031	11	15	18	19	82092	
SD553C36S50L	3600	560	55	10100	10570	3.24	5000	0.031	11	15	18	19	82092	
SD553C40S50L	4000	560	55	10100	10570	3.24	5000	0.031	11	15	18	19	82092	
SD553C45S50L	4500	560	55	10100	10570	3.24	5000	0.031	11	15	18	19	82092	
SD703C12S20L	1200	700	55	7820	8190	2.20	2000	0.046	11	15	19		82075	
SD703C16S20L	1600	700	55	7820	8190	2.20	2000	0.046	11	15	19		82075	
SD703C20S20L	2000	700	55	7820	8190	2.20	2000	0.046	11	15	19		82075	
SD703C25S20L	2500	700	55	7820	8190	2.20	2000	0.046	11	15	19		82075	
SD703C12S30L	1200	790	55	8070	8450	1.85	3000	0.046	11	15	19		82075	
SD703C16S30L	1600	790	55	8070	8450	1.85	3000	0.046	11	15	19		82075	
SD703C20S30L	2000	790	55	8070	8450	1.85	3000	0.046	11	15	19		82075	
SD703C25S30L	2500	790	55	8070	8450	1.85	3000	0.046	11	15	19		82075	
SD1053C18S30L	1800	920	55	10930	11450	2.26	3000	0.031	3	5			82079	

2 For Ifsm: 100% VRRM reapplied, T<sub>J</sub>=T<sub>J</sub> max.=125°C

3 trr conditions: T<sub>J</sub> = 25°C, IFM = π X rated IF(AV), dI/dt = 25 A/μs.

4 VFM measured at T<sub>J</sub>= 25°C

5 Cathode to stud. To order anode to stud, add 'R' to part number (e.g. IRD3899R,40HFLR10502)

6 Available with metric stud. To order, add M to part number (e.g. 40FL10S02M)

7 VFM conditions: IFM = 30A<sub>pk</sub>, T<sub>J</sub>=25°C

8 VFM conditions: IFM = 60A<sub>pk</sub>, T<sub>J</sub>=25°C

9 IF(AV) conditions: 180°C conduction, half sine

10 T<sub>J</sub> = 25°C, IF=1A, -di/dt = 100A/μs, VR=30V

11 For Ifsm: 100% VRRM reapplied, T<sub>J</sub>=T<sub>J</sub> max.

12 Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (e.g. SD103R04S1C)

13 Available with metric stud. To order, change P to M in part number (e.g. SD103N04S10MV)

14 Available with flag lead. To order, add B to part number, e.g. (e.g. SD103N04S10PBV)

15 For trr: T<sub>J</sub>=25°C

INPUT

CONTROL

SWITCH

OUTPUT

Fast Recovery Diodes Page G-33



# Fast Recovery Diodes

International  
**IOR** Rectifier

Part Number	$V_{RRM}$ (V)	$I_{FAV}$ @ $T_C$		$I_{FSM}$		$V_{FM}^{\oplus}$ $\pi \times I_{F(AV)}$	$t_{rr}$ (nS)	$R_{\theta JC}$ (°C/W)	Notes		Fax-on-Demand	Outline
		(A)	(C)	50 Hz	60Hz							
SD1053C22S30L	2200	920	55	10930	11450	2.26	3000	0.031	3	5	82079	R28
SD1053C25S30L	2500	920	55	10930	11450	2.26	3000	0.031	3	5	82079	
SD1053C28S30L	2800	920	55	10930	11450	2.26	3000	0.031	3	5	82079	
SD1053C30S30L	3000	920	55	10930	11450	2.26	3000	0.031	3	5	82079	
SD1053C18S20L	1800	1050	55	12620	13210	1.90	2000	0.031	3	5	82079	
SD1053C22S20L	2200	1050	55	12620	13210	1.90	2000	0.031	3	5	82079	
SD1053C25S20L	2500	1050	55	12620	13210	1.90	2000	0.031	3	5	82079	

DO-200AC (K-Puk)



SD853C30S50K	3000	990	55	16000	16750	2.90	5000	0.02	11	15	18	19	82093	R29
SD853C36S50K	3600	990	55	16000	16750	2.90	5000	0.02	11	15	18	19	82093	
SD853C40S50K	4000	990	55	16000	16750	2.90	5000	0.02	11	15	18	19	82093	
SD853C45S50K	4500	990	55	16000	16750	2.90	5000	0.02	11	15	18	19	82093	
SD1553C18S30K	1800	1650	55	18500	19370	2.60	3000	0.02	11	15	19		82091	
SD1553C22S30K	2200	1650	55	18500	19370	2.60	3000	0.02	11	15	19		82091	
SD1553C25S30K	2500	1650	55	18500	19370	2.60	3000	0.02	11	15	19		82091	
SD1553C28S30K	2800	1650	55	18500	19370	2.60	3000	0.02	11	15	19		82091	
SD1553C30S30K	3000	1650	55	18500	19370	2.60	3000	0.02	11	15	19		82091	
SD1553C18S20K	1800	1825	55	21030	22010	2.23	2000	0.02	11	15	19		82091	
SD1553C22S20K	2200	1825	55	21030	22010	2.23	2000	0.02	11	15	19		82091	
SD1553C25S20K	2500	1825	55	21030	22010	2.23	2000	0.02	11	15	19		82091	

B-44 (R-Puk)



SD2053C32S50R	3200	2000	55	25600	27100	3.50	5000	0.01	11	15	19			R30
SD2053C36S50R	3600	2000	55	25600	27100	3.50	5000	0.01	11	15	19			
SD2053C40S50R	4000	2000	55	25600	27100	3.50	5000	0.01	11	15	19			
SD2053C45S50R	4500	2000	55	25600	27100	3.50	5000	0.01	11	15	19			
SD3553C16S50R	1600	3500	55	40200	42600	2.04	2000	0.01	11	15	19			
SD3553C20S50R	2000	3500	55	40200	42600	2.04	2000	0.01	11	15	19			
SD3553C25S50R	2500	3500	55	40200	42600	2.04	2000	0.01	11	15	19			

2 For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.} = 125^\circ\text{C}$

3  $t_{rr}$  conditions:  $T_J = 25^\circ\text{C}$ ,  $I_{FM} = \pi \times I_{F(AV)}$ ,  $dI/dt = 25 \text{ A}/\mu\text{s}$ .

4 VFM measured at  $T_J = 25^\circ\text{C}$

5 Cathode to stud. To order anode to stud, add 'R' to part number (e.g. IRD3899R, 40HFLR10502)

6 Available with metric stud. To order, add M to part number (e.g. 40FL10S02M)

7 VFM conditions:  $I_{FM} = 30 \text{ Apk}$ ,  $T_J = 25^\circ\text{C}$

8 VFM conditions:  $I_{FM} = 60 \text{ Apk}$ ,  $T_J = 25^\circ\text{C}$

9  $I_{F(AV)}$  conditions:  $180^\circ\text{C}$  conduction, half sine

10  $T_J = 25^\circ\text{C}$ ,  $I_{F(AV)} = 1 \text{ A}$ ,  $-dI/dt = 100 \text{ A}/\mu\text{s}$ ,  $V_R = 30 \text{ V}$

11 For  $I_{FSM}$ : 100%  $V_{RRM}$  reapplied,  $T_J = T_J \text{ max.}$

12 Cathode to stud. To order anode to stud, change 'N' to 'R' in part number (e.g. SD103R04S1C)

13 Available with metric stud. To order, change P to M in part number (e.g. SD103N04S10MV)

14 Available with flag lead. To order, add B to part number, e.g. (e.g. SD103N04S10PBV)

15 For  $t_{rr}$ :  $T_J = 25^\circ\text{C}$

INPUT

CONTROL

SWITCH

OUTPUT

Fast Recovery Diodes Page G-34

# Fast Power Modules

International  
IOR Rectifier

Part Number	$V_{RRM}$ (V)	$I_{FAV}$ @ $T_C$		$I_{FSM}$ 50 Hz 60Hz		$V_{FM}$ (V)	$t_{rr}$ (ns)	$R_{\theta JC}^{DC}$ (K/W)	Notes	Fax-on-Demand	Outline
		(A)	(C)	(A)	(A)						

## Diode

## T-Module



T40HFL10S05	100	40	70	400	420	1.6	500 (110)	0.85	3	10	11	17	22
T40HFL10S02	100	40	70	400	420	1.6	200 (70)	0.85	3	10	11	17	22
T40HFL20S02	200	40	70	400	420	1.6	200 (70)	0.85	3	10	11	17	22
T40HFL20S05	200	40	70	400	420	1.6	500 (110)	0.85	3	10	11	17	22
T40HFL40S02	400	40	70	400	420	1.6	200 (70)	0.85	3	10	11	17	22
T40HFL40S05	400	40	70	400	420	1.6	500 (110)	0.85	3	10	11	17	22
T40HFL60S02	600	40	70	400	420	1.6	200 (70)	0.85	3	10	11	17	22
T40HFL60S05	600	40	70	400	420	1.6	500 (110)	0.85	3	10	11	17	22
T40HFL80S05	800	40	70	400	420	1.6	500 (110)	0.85	3	10	11	17	22
T40HFL100S05	1000	40	70	400	420	1.6	500 (110)	0.85	3	10	11	17	22
T70HFL10S05	100	70	70	700	730	1.73	500 (110)	0.53	3	10	11	17	22
T70HFL10S02	100	70	70	700	730	1.73	200 (70)	0.53	3	10	11	17	22
T70HFL20S02	200	70	70	700	730	1.73	200 (70)	0.53	3	10	11	17	22
T70HFL20S05	200	70	70	700	730	1.73	500 (110)	0.53	3	10	11	17	22
T70HFL40S05	400	70	70	700	730	1.73	500 (110)	0.53	3	10	11	17	22
T70HFL40S02	400	70	70	700	730	1.73	200 (70)	0.53	3	10	11	17	22
T70HFL60S05	600	70	70	700	730	1.73	500 (110)	0.53	3	10	11	17	22
T70HFL60S02	600	70	70	700	730	1.73	200 (70)	0.53	3	10	11	17	22
T70HFL80S05	800	70	70	700	730	1.73	500 (110)	0.53	3	10	11	17	22
T70HFL100S05	1000	70	70	700	730	1.73	500 (110)	0.53	3	10	11	17	22
T85HFL10S02	100	85	70	1100	1150	1.55	200 (80)	0.46	3	10	11	17	22
T85HFL10S05	100	85	70	1100	1150	1.55	500 (120)	0.46	3	10	11	17	22
T85HFL20S05	200	85	70	1100	1150	1.55	500 (120)	0.46	3	10	11	17	22
T85HFL20S02	200	85	70	1100	1150	1.55	200 (80)	0.46	3	10	11	17	22
T85HFL40S05	400	85	70	1100	1150	1.55	500 (120)	0.46	3	10	11	17	22
T85HFL40S02	400	85	70	1100	1150	1.55	200 (80)	0.46	3	10	11	17	22
T85HFL60S05	600	85	70	1100	1150	1.55	500 (120)	0.46	3	10	11	17	22
T85HFL60S02	600	85	70	1100	1150	1.55	200 (80)	0.46	3	10	11	17	22
T85HFL80S05	800	85	70	1100	1150	1.55	500 (120)	0.46	3	10	11	17	22
T85HFL100S05	1000	85	70	1100	1150	1.55	500 (120)	0.46	3	10	11	17	22

M3

## Diode

## INT-A-Pak



IRKEL132-06S10	600	140	100	2500	2600	1.68	1000	0.20	11	20	21	23	24	25
IRKEL132-10S10	1000	140	100	2500	2600	1.68	1000	0.20	11	20	21	23	24	25
IRKEL132-12S20	1200	140	100	2500	2600	1.68	2000	0.20	11	20	21	23	24	25
IRKEL132-14S20	1400	140	100	2500	2600	1.68	2000	0.20	11	20	21	23	24	25

M5

### NOTES:

- 3 trr conditions:  $T_J = 25^\circ\text{C}$ , IFM at pi X rated IF(AV),  $-diF/dt = 25\text{A}/\mu\text{s}$
- 10 trr conditions:  $T_J = 25^\circ\text{C}$ , IF = 1A to  $V_R=30\text{V}$ ,  $-diF/dt = 100\text{A}/\mu\text{s}$ . Values shown in parentheses.
- 11 For Ifsm: 100% VRRM reapplied,  $T_J=T_J \text{ max}$ .
- 15 For Ifm:  $T_J=25^\circ\text{C}$

- 20 Value given for  $R_{thJC}$  is per module.
- 21 VFM at IFM = pi X rated IF(AV),  $T_J=25^\circ\text{C}$ .
- 22 RMS isolation voltage=3500V - 50Hz
- 23 RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

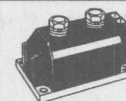
# Fast Power Modules

International  
**IOR** Rectifier

Part Number	$V_{RRM}$	$I_{FAV}$	$T_C$	$I_{FSM}$		$V_{FM}$	$t_{rr}$	$R_{\theta JCDC}$	Notes	Fax-on-Demand	Outline
	(V)	(A)	(C)	50 Hz	60 Hz	(V)	(ns)	(K/W)			

## Diode

## MAGN-A-Pak



IRKEL240-20S30	2000		240	100	6300	6600	1.71	3000	0.125	11	20	21	23	24
IRKEL240-25S30	2500		240	100	6300	6600	1.71	3000	0.125	11	20	21	23	24
IRKEL240-06S10	600		250	100	6750	7100	1.62	1000	0.125	11	20	21	23	24
IRKEL240-10S10	1000		250	100	6750	7100	1.62	1000	0.125	11	20	21	23	24
IRKEL240-12S20	1200		250	100	6750	7100	1.62	2000	0.125	11	20	21	23	24
IRKEL240-14S20	1600		250	100	6750	7100	1.62	2000	0.125	11	20	21	23	24

M6

### NOTES:

3 trr conditions:  $T_j = 25^\circ\text{C}$ , IFM at pi X rated IF(AV),  $-diF/dt = 25\text{A}/\mu\text{s}$

10 trr conditions:  $T_j = 25^\circ\text{C}$ , IF = 1A to  $V_R=30\text{V}$ ,  $-diF/dt = 100\text{A}/\mu\text{s}$ . Values shown in parentheses.

11 For Ifsm: 100% VRRM reapplied,  $T_j=T_j \text{ max}$ .

15 For Ifrm:  $T_j=25^\circ\text{C}$

20 Value given for  $R_{\theta JC}$  is per module.

21 VFM at IFM = pi X rated IF(AV),  $T_j=25^\circ\text{C}$ .

22 RMS isolation voltage=3500V - 50Hz

23 RMS isolation voltage=3000V - 50Hz

INPUT

CONTROL

SWITCH

OUTPUT

International  
**IOR** Rectifier

Fast Power Modules Page G-37





# Government and Space Products

International  
**IOR** Rectifier

Part Number	Voltage	Current	CECC	Issue	Issue	Level of Quality	Fax-on-Demand
	(V)	(A)	Specs	Number	Date	Assessment and CECC 50 000 Screen Level Options	

## Rectifiers CECC-Qualified, Europe

Mfg. in Italy

DO-203AA (DO-4)



12F(R)10	100	12	50 009-37	2	6/91	F,FA,FB,FC,FD,L,LA,LB,LC,LD	20009
12F(R)100	1000	12					20009
12F(R)120	1200	12					20009
12F(R)20	200	12					20009
12F(R)40	400	12					20009
12F(R)60	600	12					20009
12F(R)80	800	12					20009
16F(R)10	100	16					20009
16F(R)100	1000	16					20009
16F(R)120	1200	16					20009
16F(R)20	200	16					20009
16F(R)40	400	16					20009
16F(R)60	600	16					20009
16F(R)80	800	16					20009
6F(R)100	1000	6					20009
6F(R)120	1200	6					20009
6F(R)60	600	6					20009
6F(R)80	800	6					20009
6F(R)10	100	6					20009
6F(R)20	200	6					20009
6F(R)40	400	6					20009

INPUT

CONTROL

SWITCH

OUTPUT

# Government and Space Products

International  
**IOR** Rectifier

Part Number	Voltage (V)	Current (A)	CECC Specs	Issue Number	Issue Date	Level of Quality	
						Assessment and CECC 50 000 Screen Level Options	Fax-on- Demand

## Rectifiers

## CECC-Qualified, Europe

Mfg. in Italy

DO-203AB (DO-5)



40HF(R)10	100	40	50 009-38	2	6/91	F,FA,FB,FC,FD,L,LA,LB,LC,LD	20014
40HF(R)100	1000	40					20014
40HF(R)120	1200	40					20014
40HF(R)140	1400	40					20014
40HF(R)160	1600	40					20014
40HF(R)20	200	40					20014
40HF(R)40	400	40					20014
40HF(R)60	600	40					20014
40HF(R)80	800	40					20014
70HF(R)10	100	70	50 009-27				20014
70HF(R)100	1000	70					20014
70HF(R)120	1200	70					20014
70HF(R)140	1400	70					20014
70HF(R)160	1600	70					20014
70HF(R)20	200	70					20014
70HF(R)40	400	70					20014
70HF(R)60	600	70					20014
70HF(R)80	800	70					20014
85HF(R)10	100	85	50 009-40				20014
85HF(R)100	1000	85					20014
85HF(R)120	1200	85					20014
85HF(R)20	200	85					20014
85HF(R)40	400	85					20014
85HF(R)60	600	85					20014
85HF(R)80	800	85					20014

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	Voltage (V)	Current (A)	CECC Specs	Issue Number	Issue Date	Level of Quality	
						Assessment and CECC 50 000 Screen Level Options	Fax-on- Demand

## Thyristors

## CECC Qualified, Europe

TO-208AA (TO-48)



10RIA10	100	10	50 011-008	2	30072	F,FL	30060
10RIA100	1000	10					30060
10RIA120	1200	10					30060
10RIA20	200	10					30060
10RIA40	400	10					30060
10RIA60	600	10					30060
10RIA80	800	10					30060
16RIA10	100	16				F,FL	30060
16RIA100	1000	16					30060
16RIA120	1200	16					30060
16RIA20	200	16					30060
16RIA40	400	16					30060
16RIA60	600	16					30060
16RIA80	800	16					30060
22RIA10	100	22				F,FL	30060
22RIA100	1000	22					30060
22RIA120	1200	22					30060
22RIA20	200	22					30060
22RIA40	400	22					30060
22RIA60	600	22					30060
22RIA80	800	22					30060
25RIA10	100	25				F,FL	30060
25RIA100	1000	25					30060
25RIA120	1200	25					30060
25RIA20	200	25					30060
25RIA40	400	25					30060
25RIA60	600	25					30060
25RIA80	800	25					30060



Part Number	Voltage	Current	CECC	Issue	Issue	Level of Quality	Fax-on-Demand
	(V)	(A)	Specs	Number	Date	Assessment and CECC 50 000 Screen Level Options	

## Thyristors

## CECC Qualified, Europe

TO-208AC (TO-65)



50RIA10	100	50	50 011-008	2	31747	F,FL	30062
50RIA100	1000	50					30062
50RIA120	1200	50					30062
50RIA20	200	50					30062
50RIA40	400	50					30062
50RIA60	600	50					30062
50RIA80	800	50					30062

# Government and Space Products

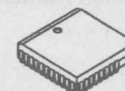
International  
**IOR** Rectifier

## Control Integrated Circuits

Part Number	VS Offset Supply Voltage (V)	VBS, VCC Supply Voltage (V)	IOU Sink, Source (A)	Fax-on-Demand	Outline
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### High & Low Side Driver

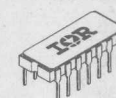
LCC



IR2110E4	-4 to 400	10 to 20	2	60086	P9
IR2110E6	-4 to 600	10 to 20	2	60065	P9

### High & Low Side Driver

MO-036AB

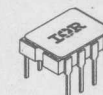


IR2110L4	-4 to 400	10 to 20	2	60085	P22
IR2110L6	-4 to 600	10 to 20	2	60074	P22

Part Number	VS Floating Supply Offset (V)	VB Floating Supply (V)	VCC Fixed Supply (V)	VO Output Voltage (V)	Fax-on-Demand	Outline
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### High & Low Side Driver

MO-036AA

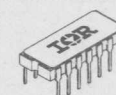


IR2125Z	-5 to 400	VS +12 to VS +18	12 to 18	VS +0.1 to VS -0.1	60024	P21
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Part Number	VS Floating Supply Offset (V)	VB Floating Supply (V)	VCC Fixed Supply (V)	Typical IOU Source / Sink (V)	Fax-on-Demand	Outline
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### Three-Phase Driver

MO-038AB



IR2130D	-5 to 400	VS +10 to VS +20	10 to 20	250mA / 500 mA	60022	P22
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INPUT

CONTROL

SWITCH

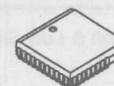
OUTPUT

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	Total Dose Rating Rads (Si)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
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**HEXFET® Power MOSFETs**

Radiation Hardened

LCC

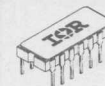


H20

IRHE7110	N-Channel	100	0.6	3.1	2	100	11
IRHE7130		100	0.18	8	5	100	22
IRHE7230		200	0.4	4.5	2.5	100	22
IRHE8110		100	0.6	3.1	2	1000	11
IRHE8130		100	0.18	8	5	1000	22
IRHE8230		200	0.4	4.5	2.5	1000	22
IRHE9130	P-Channel	-100	0.3	-6	-3.5	100	22
IRHE9230		-200	0.8	-3.6	-2.2	100	22

Radiation Hardened

MO-036AB




H29

IRHG7110	N-Channel	100	0.7	1	0.6	100	1.4
IRHG6110	N- and P-Channel	100	0.7	1	0.6	100	1.4
		-100	1.4	-75	-0.5	100	1.4

# Government and Space Products

International  
IOR Rectifier

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	Total Dose Rating Rads (Si)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
Radiation Hardened									
								SMD-1	
IRHN7054	N-Channel	60	0.027	35	30	100	150	90884	H21
IRHN7130		100	0.18	14	9	100	75	90821	
IRHN7150		100	0.055	34	21	100	150	90720	
IRHN7230		200	0.4	9	6	100	75	90822	
IRHN7250		200	0.1	26	16	100	150	90679	
IRHN7450		500	0.45	11	7	100	150		
IRHN8054		60	0.027	35	30	1000	150	90884	
IRHN8130		100	0.18	14	9	1000	75	90821	
IRHN8150		100	0.055	34	21	1000	150	90720	
IRHN8230		200	0.4	9	6	1000	75	90822	
IRHN8250		200	0.1	26	16	1000	150	90679	
IRHN8450		500	0.45	11	7	1000	150		
JANSF2N7268U		100	0.065	34	21	300	150		
JANSF2N7269U		200	0.1	26	16	300	150		
JANSF2N7270U		500	0.45	11	7	300	150		
JANSF2N7394U		60	0.027	35	30	300	150		
JANSF2N7268U		100	0.065	34	21	600	150		
JANSF2N7269U		200	0.1	26	16	600	150		
JANSF2N7270U		500	0.45	11	7	600	150		
JANSF2N7394U		60	0.027	35	30	600	150		
JANSH2N7268U		100	0.065	34	21	1000	150		
JANSH2N7269U		200	0.1	26	16	1000	150		
JANSH2N7270U		500	0.45	11	7	1000	150		
JANSH2N7394U		60	0.027	35	30	1000	150		
JANSR2N7268U		100	0.065	34	21	100	150		
JANSR2N7269U		200	0.1	26	16	100	150		
JANSR2N7270U		500	0.45	11	7	100	150		
JANSR2N7394U		60	0.027	35	30	100	150		
IRHN9130	P-Channel	-100	0.3	-11	-7	100	75	90886	
IRHN9150		-100	0.12	-22	-14	100	150	90885	
IRHN9230		-200	0.8	-6.5	-4	100	75	91445	
IRHN9250		-200	0.315	-14	-9	100	150	91300	

INPUT

CONTROL

SWITCH

OUTPUT



Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	Total Dose Rating Rads (Si)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
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## Radiation Hardened

SMD-2



IRHNA7064	N-Channel	60	0.015	75	56	100	300	91416	H30
IRHNA7160		100	0.045	51	32.5	100	300	91396	
IRHNA7260		200	0.07	43	27	100	300	91397	
IRHNA8064		60	0.015	75	56	1000	300	91416	
IRHNA8160		100	0.045	51	32.5	1000	300	91396	
IRHNA8260		200	0.07	43	27	1000	300	91397	
IRHNA9064	P-Channel	-60	0.055	-48	-30	100	300	91447	
IRHNA9160		-100	0.087	-38	-24	100	300	91433	
IRHNA9260		-200	0.22	-24	-15	100	300		

## Radiation Hardened

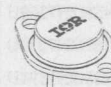
TO-204AA (TO-3)



IRH7130	N-Channel	100	0.18	14	9	100	75		H20
IRH7230		200	0.4	9	6	100	75		
IRH7450		500	0.45	11	7	100	150		
IRH8130		100	0.18	14	9	1000	75		
IRH8230		200	0.4	9	6	1000	75		
IRH8450		500	0.45	11	7	1000	150		
IRH9130	P-Channel	-100	0.3	-11	-7	100	75		
IRH9230		-200	0.8	-6	-4	100	75	91391	

## Radiation Hardened

TO-204AE



IRH7054	N-Channel	60	0.027	45	32	100	150		H24
IRH7150		100	0.055	38	24	100	150		
IRH7250		200	0.1	26	17	100	150		
IRH8054		60	0.027	45	32	1000	150		
IRH8150		100	0.055	38	24	1000	150		
IRH8250		200	0.1	26	17	1000	150		
IRH9150	P-Channel	-100	0.12	-21	-13	100	150		
IRH9250		-200	0.3	-14	-9	100	150	91312	

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	Total Dose Rating Rads (Si)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
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## Radiation Hardened

TO-205AF (TO-39)



IRHF7110	N-Channel	100	0.6	3.5	2.2	100	15	90671	H22
IRHF7130		100	0.18	8	5	100	25	90653	
IRHF7210		200	1.5	2	1.3	100	15		
IRHF7230		200	0.4	5.5	3.5	100	25	90672	
IRHF7234		250	0.48	4.8	3	100	25		
IRHF8110		100	0.6	3.5	2.2	1000	15	90671	
IRHF8130		100	0.18	8	5	1000	25	90653	
IRHF8210		200	1.5	2	1.3	1000	15		
IRHF8230		200	0.4	5.5	3.5	1000	25		
IRHF8234		250	0.48	4.8	3	100	25		
JANSF2N7261		100	0.18	8	5	300	25		
JANSF2N7262		200	0.4	5.5	3.5	300	25		
JANSF2N7261		100	0.18	8	5	600	25		
JANSF2N7262		200	0.4	5.5	3.5	600	25		
JANSH2N7261		100	0.18	8	5	1000	25		
JANSH2N7262		200	0.4	5.5	3.5	1000	25		
JANSR2N7261		100	0.18	8	5	100	25		
JANSR2N7262		200	0.4	5.5	3.5	100	25		
IRHF9130	P-Channel	-100	0.3	-6.5	-4.1	100	25	90882	
IRHF9230		-200	0.8	-4	-2.4	100	25	91312	
JANSR2N7389		-100	0.3	-6.5	-4.1	100	25		
JANSR2N7390		-200	0.8	-4	-2.4	100	25		

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	Total Dose Rating Rads (Si)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
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## Radiation Hardened

TO-254AA



IRHM7054	N-Channel	60	0.027	35	30	100	150		H25
IRHM7064		60	0.021	35	35	100	250		
IRHM7130		100	0.18	14	9	100	75		
IRHM7150		100	0.065	34	21	100	150	90675	
IRHM7160		100	0.045	35	30	100	250	91331	
IRHM7230		200	0.4	9	6	100	75		
IRHM7250		200	0.1	26	16	100	150	90674	
IRHM7254		250	0.12	23	15	100	150		
IRHM7260		200	0.07	35	25	100	250	91332	
IRHM7360		400	0.22	22	14	100	250	90823	
IRHM7450		500	0.45	11	7	100	150	90673	
IRHM8054		60	0.027	35	30	1000	150		
IRHM8064		60	0.021	35	35	1000	250		
IRHM8130		100	0.18	14	9	1000	75		
IRHM8150		100	0.065	34	21	1000	150	90675	
IRHM8160		100	0.045	35	30	1000	250	91331	
IRHM8230		200	0.4	9	6	1000	75		
IRHM8250		200	0.1	26	16	1000	150	90674	
IRHM8254		250	0.12	23	15	1000	150		
IRHM8260		200	0.07	35	25	1000	250	91332	
IRHM8360		400	0.22	22	14	1000	250	90823	
IRHM8450		500	0.45	11	7	1000	150	90673	
JANSF2N7268		100	0.065	34	21	300	150		
JANSF2N7269		200	0.1	26	16	300	150		
JANSF2N7270		500	0.45	11	7	300	150		
JANSF2N7394		60	0.027	35	30	300	150		
JANSF2N7268		100	0.065	34	21	600	150		
JANSF2N7269		200	0.1	26	16	600	150		
JANSF2N7270		500	0.45	11	7	600	150		
JANSF2N7394		60	0.027	35	30	600	150		
JANSF2N7268		100	0.065	34	21	1000	150		
JANSF2N7269		200	0.1	26	16	1000	150		
JANSF2N7270		500	0.45	11	7	1000	150		
JANSF2N7394		60	0.027	35	30	1000	150		
JANSR2N7268		100	0.065	34	21	100	150		
JANSR2N7269		200	0.1	26	16	100	150		

INPUT

CONTROL

SWITCH

OUTPUT

# Government and Space Products

International  
TOR Rectifier

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	Total Dose Rating Rads (Si)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
JANSR2N7270	N-Channel	500	0.45	11	7	100	150		H25
JANSR2N7394		60	0.027	35	30	100	150		
IRHM9064	P-Channel	-60	0.06	-35	-26	100	250	91438	
IRHM9130		-100	0.3	-11	-7	100	75	90888	
IRHM9150		-100	0.12	-21	-13	100	150		
IRHM9160		-100	0.087	-35	-22	100	250	91415	
IRHM9230		-200	0.8	-6.5	-4.1	100	75		
IRHM9250		-200	0.315	-14	-9	100	150	91299	
IRHM9260		-200	0.23	-21	-13	100	250		

## Radiation Hardened

TO-257AA



IRHY7130CM	N-Channel	100	0.18	14.4	9.1	100	75	91274	H28
IRHY7230CM		200	0.4	9.4	6	100	75	91273	
IRHY8130CM		100	0.18	14.4	9.1	1000	75	91274	
IRHY8230CM		200	0.4	9.4	6	1000	75	91273	
JANSF2N7280		100	0.18	14.4	9.1	300	75	91274	
JANSF2N7281		200	0.4	9.4	6	300	75	91273	
JANSF2N7280		100	0.18	14.4	9.1	600	75	91274	
JANSF2N7281		200	0.4	9.4	6	600	75	91273	
JANSH2N7280		100	0.18	14.4	9.1	1000	75	91274	
JANSH2N7281		200	0.4	9.4	6	1000	75	91273	
JANSR2N7380		100	0.18	14.4	9.1	100	75	91274	
JANSR2N7381		200	0.4	9.4	6	100	75	91273	
IRHY9130CM	P-Channel	-100	0.3	-11	-7	100	75	91400	
IRHY9230CM		-200	0.8	-6.5	-4	100	75	91401	
JANSR2N7382		-100	0.3	-11	-7	100	75	91400	
JANSR2N7383		-200	0.8	-6.5	-4	100	75	91401	




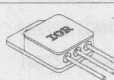

INPUT

CONTROL

SWITCH

OUTPUT

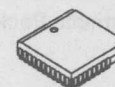


Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	Total Dose Rating Rads (Si)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
SEE Hardened								SMD-1	
IRHN7254SE	N-Channel	250	0.12	23	15	100	150		H21
IRHN7450SE		500	0.51	12	7	100	150	91313	
IRHN7C50SE		600	0.6	10	7	100	150	91476	
SEE Hardened								SMD-2	
IRHNA7264SE	N-Channel	250	0.11	34	21	100	300	91432	H30
IRHNA7360SE		400	0.2	24	15	100	300	91398	
IRHNA7460SE		500	0.32	20	13	100	300	91399	
SEE Hardened								TO-204AA	
IRH7254SE	N-Channel	250	0.12	23	15	100	150		H23
IRH7450SE		500	0.45	11	7	100	150		
IRH7C50SE		600	0.6	10.4	6.5	100	150		
SEE Hardened								TO-254AA	
IRHM7254SE	N-Channel	250	0.12	23	15	100	150		H25
IRHM7264SE		250	0.11	31	19	100	250	91393	
IRHM7360SE		400	0.2	22	14	100	250	91224	
IRHM7450SE		500	0.51	12	7	100	150	91223	
IRHM7460SE		500	0.32	18	12	100	250	91394	
IRHM7C50SE		600	0.6	10	7	100	150	91252	
SEE Hardened								TO-259AA	
IRHI7360SE	N-Channel	400	0.2	24	15	100	300	91446	H27
IRHI7460SE		500	0.32	20	13	100	300	91475	

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
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## Hermetic Packages

LCC

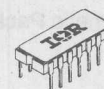


IRFE024	N-Channel	60	0.15	6.7	4.2	14		H20
IRFE034		60	0.05	15.5	9.5	22		
IRFE110		100	0.6	3.1	2	11		
IRFE120		100	0.3	4.5	3	14		
IRFE130		100	0.18	7.4	4.7	22		
IRFE210		200	1.5	1.8	1.2	11		
IRFE220		200	0.8	2.8	1.8	14		
IRFE230		200	0.4	4.8	3.1	22		
IRFE310		400	3.6	1.2	0.74	11		
IRFE320		400	1.8	1.8	1.1	14		
IRFE330		400	1	3.0	1.9	22		
IRFE420		500	3	1.4	0.9	14		
IRFE430		500	1.5	2.5	1.6	22		
IRFE9024	P-Channel	-60	0.28	-5.4	-3.4	14		
IRFE9110		-100	1.2	-2.2	-1.4	11		
IRFE9120		-100	0.6	-3.5	-2.2	14		
IRFE9130		-100	0.3	-6.1	-3.8	22		
IRFE9210		-200	3	-1.3	-0.84	11		
IRFE9220		-200	1.5	-2.1	-1.5	14		
IRFE9230		-200	0.8	-3.6	-2.2	22		

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
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## Hermetic Packages

MO-036AB



IRFG110	N-Channel	100	0.7	1	0.6	1.4		H29
JANTX2N7334		100	0.7	1	0.6	1.4		
JANTXV2N7334		100	0.7	1	0.6	1.4		
IRFG9110	P-Channel	-100	1.4	-0.75	-0.5	1.4		
JANTX2N7335		-100	1.4	-0.75	-0.5	1.4		
JANTXV2N7335		-100	1.4	-0.75	-0.5	1.4		
IRFG5110	Dual N- and P-Channel	100	0.7	1	0.6	1.4		
		-100	0.7	-1	-0.6	1.4		
IRFG6110		100	0.7	1	0.6	1.4		
		-100	1.4	-.75	-0.5	1.4		
JANTX2N7336		100	0.7	1	0.6	1.4		
		-100	1.4	-.75	-0.5	1.4		
JANTXV2N7336		100	0.7	1	0.6	1.4		
		-100	1.4	-.75	-0.5	1.4		

# Government and Space Products

International  
IOR Rectifier

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
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## Hermetic Packages

SMD-1



IRFN044	N-Channel	60	0.04	44	27	125		H21
IRFN054		60	0.02	55	40	150		
IRFN140		100	0.077	28	20	125		
IRFN150		100	0.07	34	21	150		
IRFN240		200	0.18	18	11	125		
IRFN250		200	0.1	27.4	17	150		
IRFN340		400	0.55	10	6	125		
IRFN350		400	0.315	14	9	150		
IRFN440		500	0.85	8	5	125		
IRFN450		500	0.415	12	8	150		
IRFNG40		1000	3.5	3.9	2.5	125		
IRFNG50		1000	2	5.5	3.5	150		
JANTX2N7218U		100	0.077	28	20	125		
JANTX2N7219U		200	0.18	18	11	125		
JANTX2N7221U		400	0.55	10	6	125		
JANTX2N7222U		500	0.85	8	5	125		
JANTX2N7224U		100	0.07	34	21	150		
JANTX2N7225U		200	0.1	27.4	17	150		
JANTX2N7227U		400	0.315	14	9	150		
JANTX2N7228U		500	0.415	12	8	150		
JANTXV2N7218U		100	0.077	28	20	125		
JANTXV2N7219U		200	0.18	18	11	125		
JANTXV2N7221U		400	0.55	10	6	125		
JANTXV2N7222U		500	0.85	8	5	125		
JANTXV2N7224U		100	0.07	34	21	150		
JANTXV2N7225U		200	0.1	27.4	17	150		
JANTXV2N7227U		400	0.315	14	9	150		
JANTXV2N7228U		500	0.415	12	8	150		
IRFN9034	P-Channel	-60	0.2	-12	-8	75		
IRFN9140		-100	0.2	-18	-11	125		
IRFN9240		-200	0.51	-11	-7	125		
JANS2N7236U		-100	0.2	-18	-11	125		
JANS2N7237U		-200	0.51	-11	-7	125		
JANTX2N7236U		-100	0.2	-18	-11	125		
JANTX2N7237U		-200	0.51	-11	-7	125		
JANTXV2N7236U		-100	0.2	-18	-11	125		

INPUT

CONTROL

SWITCH

OUTPUT



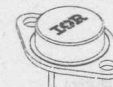
# Government and Space Products

International  
IOR Rectifier

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
JANTXV2N7237U	P-Channel	-200	0.51	-11	-7	125		H21

## Hermetic Packages

TO-204AA



JANTX2N6756	N-Channel	100	0.18	14	9	75		H23
JANTX2N6758		200	0.4	9	6	75		
JANTX2N6760		400	1	5.5	3.5	75		
JANTX2N6762		500	1.5	4.5	3	75		
JANTX2N6770		500	0.4	12	7.75	150		
JANTXV2N6756		100	0.18	14	9	75		
JANTXV2N6758		200	0.4	9	6	75		
JANTXV2N6760		400	1	5.5	3.5	75		
JANTXV2N6762		500	1.5	4.5	3	75		
JANTXV2N6770		500	0.4	12	7.75	150		
JANTX2N6804	P-Channel	-100	0.3	-11	-7	75		
JANTX2N6806		-200	0.8	-6.5	-4	75		
JANTXV2N6804		-100	0.3	-11	-7	75		
JANTXV2N6806		-200	0.8	-6.5	-4	75		

## Hermetic Packages

TO-204AE



JANTX2N6764	N-Channel	100	0.055	38	24	150		H24
JANTX2N6766		200	0.085	30	19	150		
JANTX2N6768		400	0.3	14	9	150		
JANTXV2N6764		100	0.055	38	24	150		
JANTXV2N6766		200	0.085	30	19	150		
JANTXV2N6768		400	0.3	14	9	150		

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	Channel	$B_{VDS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
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## Hermetic Packages

TO-205AF (TO-39)



JANTX2N6782	N-Channel	100	0.6	3.5	2.25	15		H22
JANTX2N6784		200	1.5	2.25	1.5	15		
JANTX2N6786		400	3.6	1.25	0.8	15		
JANTX2N6788		100	0.3	6	3.5	20		
JANTX2N6790		200	0.8	3.5	2.25	20		
JANTX2N6792		400	1.8	2	1.25	20		
JANTX2N6794		500	3	1.5	1	20		
JANTX2N6796		100	0.18	8	5	25		
JANTX2N6798		200	0.4	5.5	3.5	25		
JANTX2N6800		400	1	3	2	25		
JANTX2N6802		500	1.5	2.5	1.5	25		
JANTXV2N6782		100	0.6	3.5	2.25	15		
JANTXV2N6784		200	1.5	2.25	1.5	15		
JANTXV2N6786		400	3.6	1.25	0.8	15		
JANTXV2N6788		100	0.3	6	3.5	20		
JANTXV2N6790		200	0.8	3.5	2.25	20		
JANTXV2N6792		400	1.8	2	1.25	20		
JANTXV2N6794		500	3	1.5	1	20		
JANTXV2N6796		100	0.18	8	5	25		
JANTXV2N6798		200	0.4	5.5	3.5	25		
JANTXV2N6800		400	1	3	2	25		
JANTXV2N6802		500	1.5	2.5	1.5	25		
JANS2N6849	P-Channel	-100	0.3	-6.5	-4.1	25		
JANS2N6851		-200	0.8	-4	-2.4	25		
JANTX2N6845		-100	0.6	-4	-2.6	20		
JANTX2N6847		-200	1.5	-2.5	-1.6	20		
JANTX2N6849		-100	0.3	-6.5	-4.1	25		
JANTX2N6851		-200	0.8	-4	-2.4	25		
JANTXV2N6845		-100	0.6	-4	-2.6	20		
JANTXV2N6847		-200	1.5	-2.5	-1.6	20		
JANTXV2N6849		-100	0.3	-6.5	-4.1	25		
JANTXV2N6851		-200	0.8	-4	-2.4	25		

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
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## Hermetic Packages

TO-254AA



IRFM044	N-Channel	60	0.04	35	28	125		H25
IRFM054		60	0.027	35	35	150	90709	
IRFM064		60	0.017	35	35	250		
IRFM140		100	0.077	28	20	125		
IRFM150		100	0.07	34	21	150	90487	
IRFM240		200	0.18	18	11	125		
IRFM250		200	0.1	27.4	17	150	90554	
IRFM260		200	0.07	35*	26	250	91388	
IRFM340		400	0.55	10	6	125		
IRFM350		400	0.315	14	9	150	90491	
IRFM360		400	0.2	23	14	250		
IRFM440		500	0.85	8	5	125		
IRFM450		500	0.415	12	8	150	90493	
IRFM460		500	0.27	19	12	250	90727	
IRFMG40		1000	3.5	3.9	2.5	125		
IRFMG50		1000	2	5.6	3.5	150		
JANTX2N7218		100	0.077	28	20	125		
JANTX2N7219		200	0.18	18	11	125		
JANTX2N7221		400	0.55	10	6	125		
JANTX2N7222		500	0.85	8	5	125		
JANTX2N7224		100	0.07	34	21	150	90487	
JANTX2N7225		200	0.1	27.4	17	150	90554	
JANTX2N7227		400	0.315	14	9	150	90491	
JANTX2N7228		500	0.415	12	8	150	90493	
JANTXV2N7218		100	0.077	28	20	125		
JANTXV2N7219		200	0.18	18	11	125		
JANTXV2N7221		400	0.55	10	6	125		
JANTXV2N7222		500	0.85	8	5	125		
JANTXV2N7224		100	0.07	34	21	150	90487	
JANTXV2N7225		200	0.1	27.4	17	150	90554	
JANTXV2N7227		400	0.315	14	9	150	90491	
JANTXV2N7228		500	0.415	12	8	150	90493	
IRFM9034	P-Channel	-60	0.02	-12	-8	75		
IRFM9140		-100	0.2	-18	-11	125	90495	
IRFM9240		-200	0.51	-11	-7	125	90497	
JANS2N7236		-100	0.2	-18	-11	125	90495	

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	Channel	$B_{VDSS}$ (V)	$R_{DS(on)}$ ( $\Omega$ )	$I_D @$ $T_C = 25^\circ C$ (A)	$I_D @$ $T_C = 100^\circ C$ (A)	$P_D @$ $T_C = 25^\circ C$ (W)	Fax-on-Demand	Outline
JANS2N7237	P-Channel	-200	0.51	-11	-7	125	90497	H25
JANTX2N7236		-100	0.2	-18	-11	125	90495	
JANTX2N7237		-200	0.51	-11	-7	125	90497	
JANTXV2N7236		-100	0.2	-18	-11	125	90495	
JANTXV2N7237		-200	0.51	-11	-7	125	90497	

## Hermetic Packages

TO-257AA



IRFY044CM	N-Channel	60	0.04	16	16	100	91285	H28
IRFY130CM		100	0.18	14.4	9.1	75	91286	
IRFY140CM		100	0.077	16	16	100	91287	
IRFY240CM		200	0.18	16	10.2	100	91289	
IRFY340CM		400	0.55	8.7	5.5	100	91290	
IRFY430CM		500	1.5	4.5	2.8	75	91291	
IRFY440CM		500	0.85	7	4.4	100	91292	
IRFY9130CM	P-Channel	-100	0.3	-11.2	-7.1	75	91293	
IRFY9140CM		-100	0.2	-15.8	-10	100	91294	
IRFY9240CM		-200	0.51	-9.4	-6	100	91295	

## Hermetic Packages

TO-258AA



IRFV064	N-Channel	60	0.017	45	45	300	90877	H20
IRFV260		200	0.06	45	29	300	92002	
IRFV360		400	0.2	25	16	300	90816	
IRFV460		500	0.27	21	13	300	90660	

## Hermetic Packages

TO-259AA



IRFI064	N-Channel	60	0.017	45	45	300		H27
IRFI260		200	0.06	45	29	300		
IRFI360		400	0.2	25	16	300		
IRFI460		500	0.27	21	13	300		



Part Number	V(BR) <sub>CES</sub> (V)	V <sub>GE(th)</sub>		I <sub>C</sub> @		ETSTyp. Loss		P <sub>D</sub> Max Power Dissipation (W)	Fax-on-Demand	Outline
		Min. (V)	Max. (V)	T <sub>C</sub> =25°C (A)	T <sub>C</sub> =100°C (A)	@ T <sub>J</sub> =125°C (mJ)	(A)			

**IGBT**

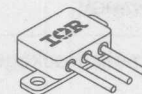
Hermetic

**TO-254AA**

IRGMC30F	600	3.0	5.5	23	12	3.5	12	75	90714	IG21
IRGMC30U	600	3.0	5.5	17	8	1.2	8	75	90715	
IRGMC40F	600	3.0	5.5	35	20	9.0	20	125	90716	
IRGMC40U	600	3.0	5.5	31	15	2.0	15	125	90717	
IRGMC50F	600	3.0	5.5	35	30	10	30	150	90718	
IRGMC50U	600	3.0	5.5	35	20	2.8	20	150	90719	

**TO-258AA**

IRGMVC50U*	600	3.0	5.5	45	27	2.8	27	200	90825	IG22
IRGVH50F	1200	3.0	5.5	45	25	8.2	25	200	90928	

**TO-259AA**

IRGIH50F	1200	3.0	5.5	45	25	8.2	25	200	90930	IG23
IRGMIC50U*	600	3.0	5.5	45	27	2.8	27	200		

\* IGBT co-packaged with UltraFast™, soft recovery HEXFRED™ Diode

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$ (V)	$I_{FAV} @ T_C$ (A)	$V_{FM} @ I_{FM}$ 25°C (V)	$I_{RM} @ V_{RWM}$ 25°C (μA)	Max. $T_J$ (°C)	Fax-on-Demand	Outline
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## Schottky Diodes, Hermetic Packages

Common Cathode

SMD-1



15CLQ100	100	15.0	100	0.9	500	150	20351	K31
20CLQ045	45	20.0	100	0.69	500	150	20352	
35CLQ045	45	35.0	100	0.97	100	150		

TO-254AA



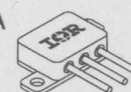
12CGQ150	150	35.0	100	1.6	500	150	20359	K32
15CGQ100	100	35.0	100	1.3	500	150	20345	
22CGQ045	45	35.0	100	0.97	100	150	20346	

TO-258AA



45CKQ100	100	45.0	100	1.13	100	150	20355	K33
60CKQ045	45	45.0	100	0.92	100	150	20347	

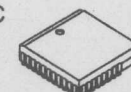
TO-259AA



45CIQ100	100	45.0	100	1.13	100	150	20356	K34
60CIQ045	45	45.0	100	0.92	100	150	20357	

Single Die

LCC



5EQ100	100	8.0	100	0.8	500	150	20349	J30
8EQ045	45	10.0	100	0.65	500	150	20350	

INPUT

CONTROL

SWITCH

OUTPUT

Part Number	$V_{RRM}$ (V)	$I_{FAV} @ T_C$ (A) (C)	$V_{FM} @ I_{FM}$ 25°C (V)	$I_{RM} @ V_{RWM}$ 25°C (μA)	Max. $T_J$ (°C)	Fax-on-Demand	Outline
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## Schottky Diodes, Hermetic Packages

SMD-1



60LQ045	45	60.0	100	0.68	800	150	20357	K31
60LQ100	100	60.0	100	0.95	100	150		

TO-254AA



22GQ100	100	30.0	100	1.1	100	150	20353	K32
25GQ045	45	35.0	100	0.93	100	150	20354	

Series Doubler

TO-254AA



22DGQ045	45	25.0	100	0.82		150	20358	K32
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Part Number	$V_{RWM}$ (V)	$I_{FAV} @ T_C$ (A)	$V_{FM} @ I_{FM}$ 25°C (V)	$I_{RM} @ V_{RWM}$ 25°C (μA)	$R_{\theta JC}$ (°K/W)	Typ. $I_{RRM}$ (A)	Typ. $t_{rr}$ (nS)	Fax-on-Demand	Outline
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## HEXFRED Diodes, Hermetic Packages

### SMD-1



HFA40HF120	1200	7	100	3	20	2.5	10	135	20376	J31
HFA40HF60	600	12	100	1.7	10	2.5	10	75	20381	

### TO-254AA



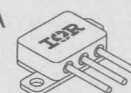
HFA35HB120	1200	11	100	3	20	1.5	10	135		J34
HFA35HB120C	1200	15	100	4.3	10	2	8	95		K32
HFA35HB60	600	22	100	1.7	10	1.5	10	75		J34
HFA35HB60C	600	30	100	2	10	2	6	60		K32

### TO-258AA



HFA45HC120C	1200	28	100	3.9	20	1.2	10	135		K33
HFA45HC60C	600	45	100	2	10	1.2	10	75		

### TO-259AA



HFA45HI120C	1200	28	100	3.9	20	1.2	10	135		K34
HFA45HI60C	600	45	100	2	10	1.2	10	75		



Product	Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
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HEXAGONAL Diode Arrays

Product	Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
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Product	Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
---------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Product	Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
---------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Product	Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
---------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

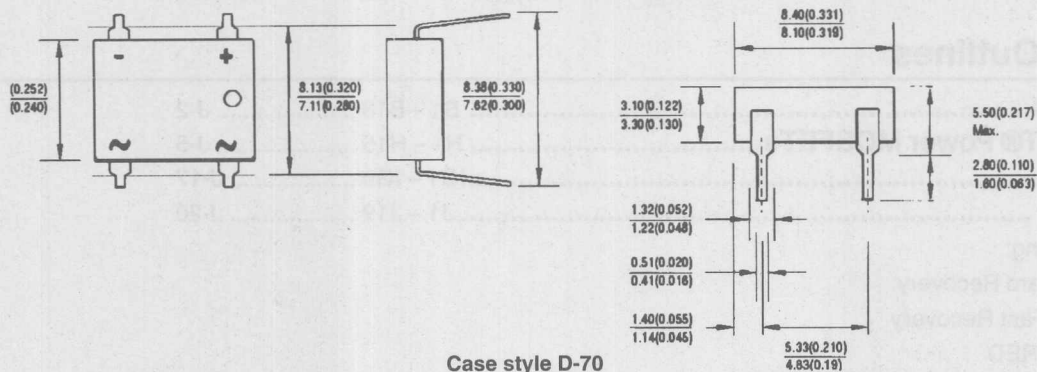
## Case Outlines

---

<b>Bridges</b> .....	B1 – B13 .....	J-2
<b>HEXFET® Power MOSFETs</b> .....	H1 – H15 .....	J-5
<b>IGBTs</b> .....	IG1 – IG9 .....	J-17
<b>Diodes</b> .....	J1 – J19 .....	J-20
including:		
Standard Recovery		
Ultra Fast Recovery		
HEXFRED		
Schottky		
<b>Modules</b> .....	M1, M3 – M7 .....	J-27
<b>Microelectronic Relays</b> .....	MR1 – MR6 .....	J-33
<b>Control Integrated Circuits</b> .....	P1 – P9 .....	J-36
<b>Diodes</b> .....	R1 – R30 .....	J-40
<b>Thyristors</b> .....	T1 – T16 .....	J-46
<b>Government and Space Products</b> .....	J-50	
Control Integrated Circuits .....	P21 – P23 .....	J-50
HEXFET® Power MOSFET .....	H-20 – H-29 .....	J-51
IGBTs .....	IG20 – IG23 .....	J-52
HEXFRED / Schottky .....	J30 – J36 .....	J-54
<b>Die Outlines</b> .....	J-57	
<b>Literature</b> .....	J-65	
<b>Worldwide Contact Information</b> .....	J-69	

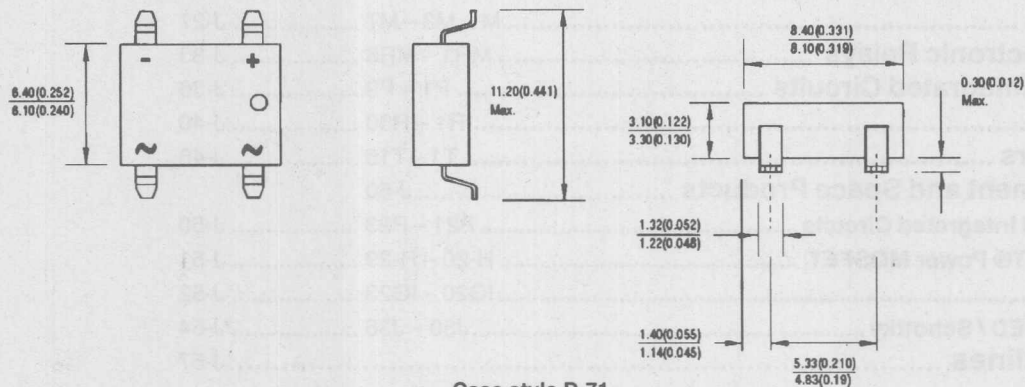
## Bridges

B1



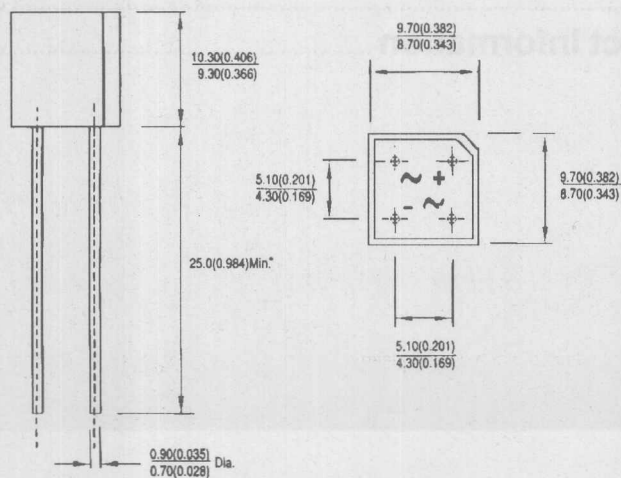
Case style D-70

B2



Case style D-71

B3



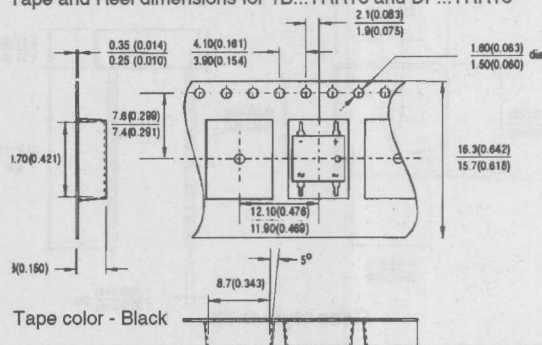
Case style D-38

\*Available with 3mm or 5mm cropped leads

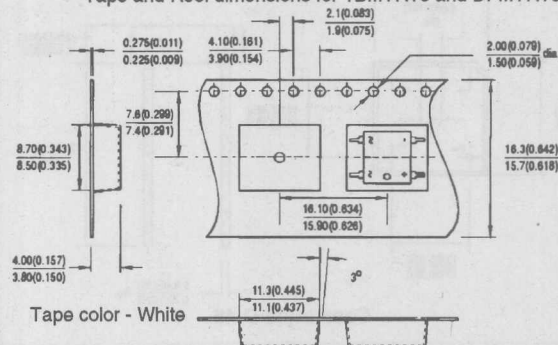
## Bridges

### B1 and B2 Tape and Reel Information

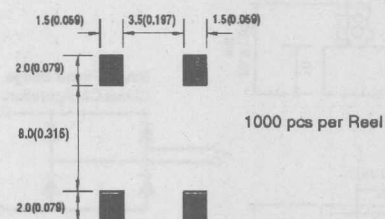
Tape and Reel dimensions for 1B...TRR16 and DF...TRR16



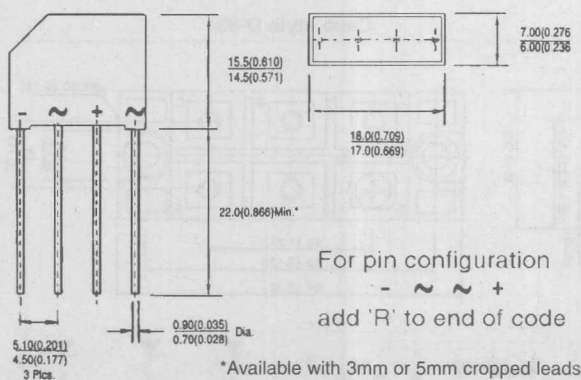
Tape and Reel dimensions for 1B...TR16 and DF...TR16



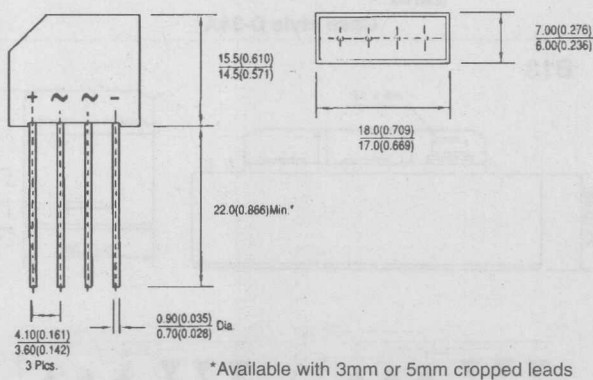
Footprint and Pad dimensions



### B5



### B6



Case style D-37

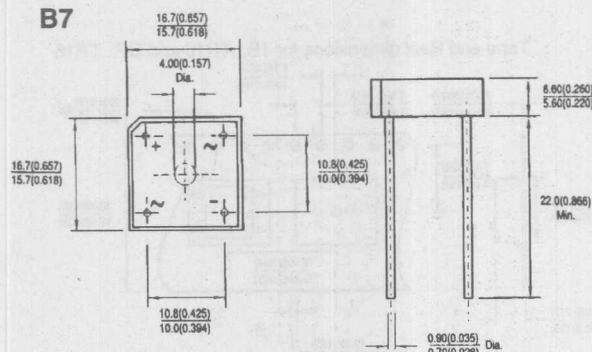
Case style D-44

Case Outlines J-3



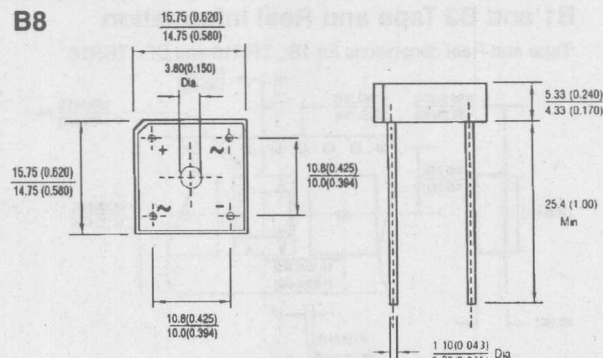
## Bridges

**B7**



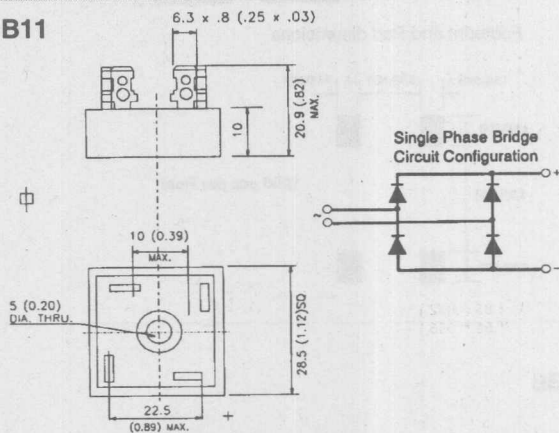
Case style D-46

**B8**



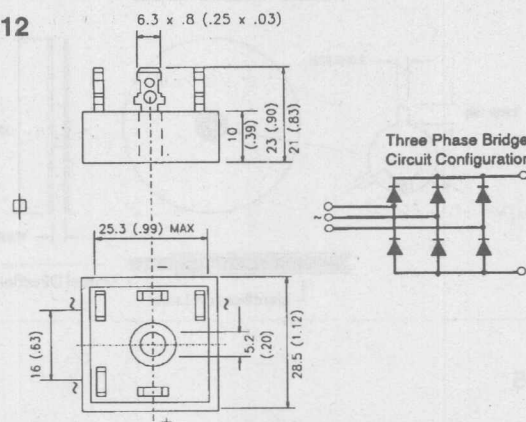
Case style D-72

**B11**



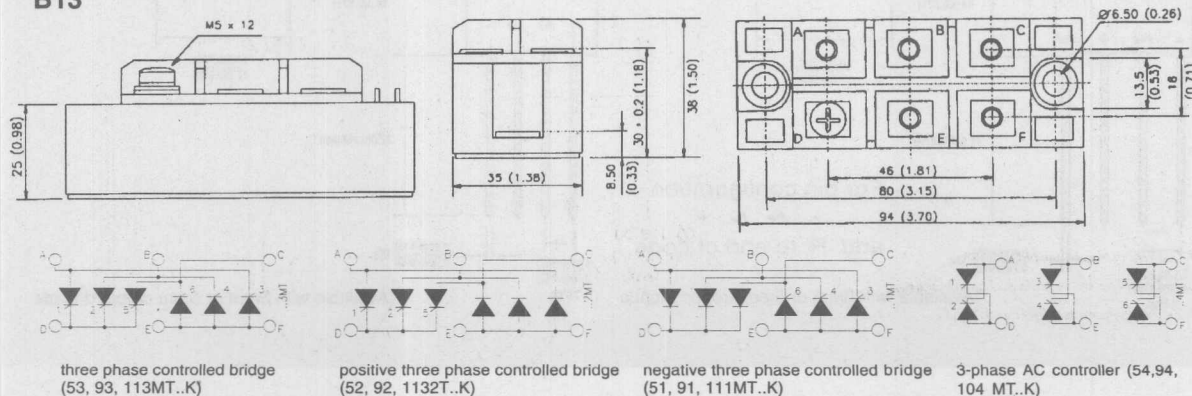
Case style D-34A

**B12**



Case style D-63

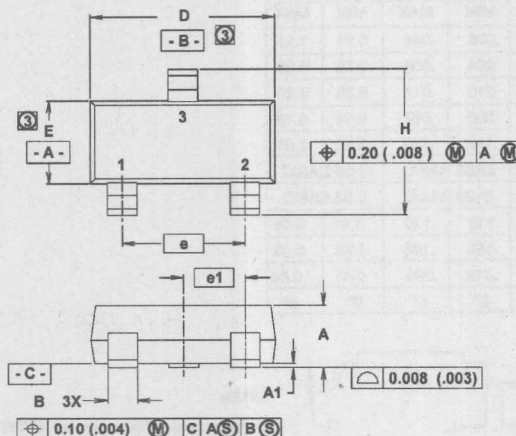
**B13**



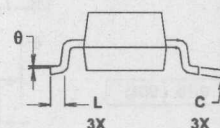
Case style INT-A-Pak

# HEXFET® Power MOSFETs

H1



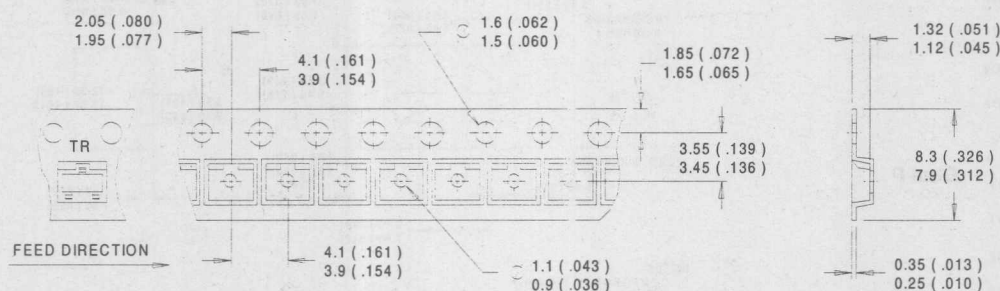
DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.032	.044	0.82	1.11
A1	.001	.004	0.02	0.10
B	.015	.021	0.38	0.54
C	.004	.006	0.10	0.15
D	.105	.120	2.67	3.05
e	.0750 BASIC		1.90 BASIC	
e1	.0375 BASIC		0.95 BASIC	
E	.047	.055	1.20	1.40
H	.083	.098	2.10	2.50
L	.005	.010	0.13	0.25
q	0°	8°	0°	8°



**LEAD ASSIGNMENTS**  
1 - Gate  
2 - Source  
3 - Drain

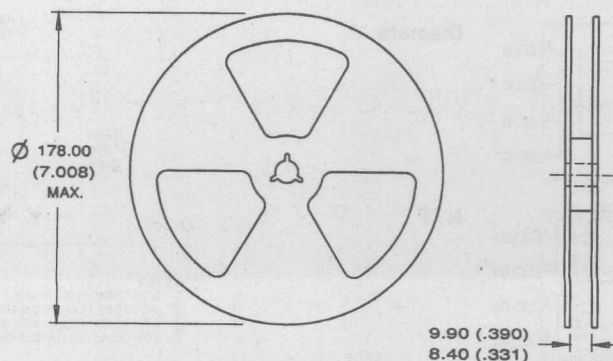
Case style SOT-23 (Micro3)

## Tape and Reel



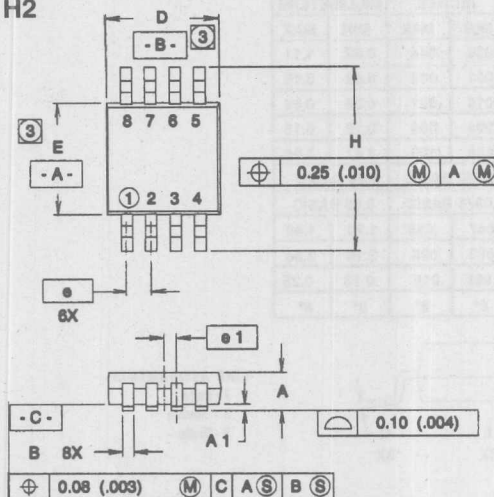
### NOTES:

1. Controlling Dimension: MILLIMETER.
2. All dimensions are shown in millimeters (inches.)
3. Outline conforms to EIA-481 and EIA-541

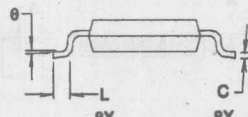


## HEXFET® Power MOSFETs

H2



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.036	.044	0.91	1.11
A1	.004	.008	0.10	0.20
B	.010	.014	0.25	0.36
C	.005	.007	0.13	0.18
D	.116	.120	2.95	3.05
e	.0256 BASIC		0.65 BASIC	
e1	.0128 BASIC		0.33 BASIC	
E	.116	.120	2.95	3.05
H	.188	.198	4.78	5.03
L	.018	.026	0.41	0.66
θ	0°	6°	0°	6°

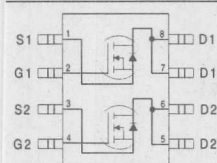


**NOTES:**

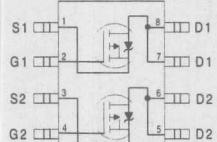
1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling Dimension: INCH.
3. Dimensions do not include mold flash.

Case style Micro8

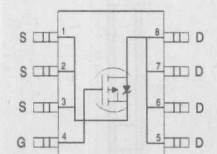
### Circuit Diagrams



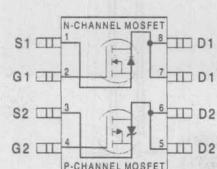
Dual N



Dual P

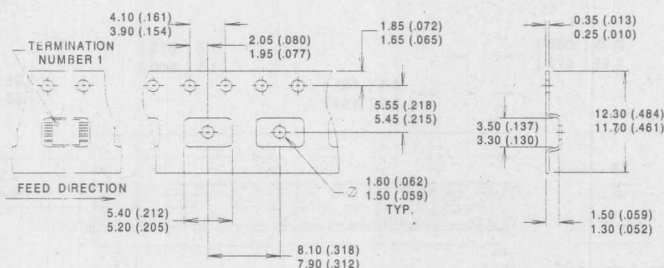


Discrete



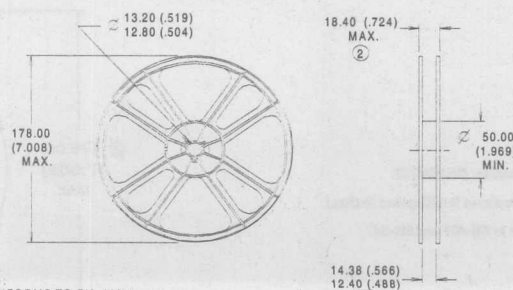
N/P

### Tape and Reel



**NOTES:**

1. CONFORMS TO EIA-481-1.
2. CONTROLLING DIMENSION: MILLIMETER.

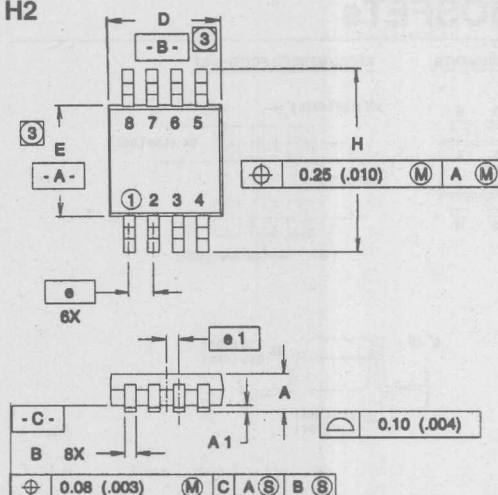


**NOTES:**

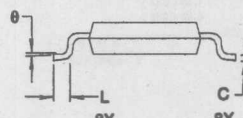
1. CONFORMS TO EIA-418-1.
2. INCLUDES FLANGE DISTORTION @ OUTER EDGE.
3. DIMENSION MEASURED @ HUB.
4. CONTROLLING DIMENSION: MILLIMETER.

# HEXFET® Power MOSFETs

H2



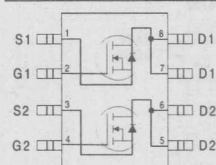
DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.038	.044	0.91	1.11
A1	.004	.008	0.10	0.20
B	.010	.014	0.25	0.38
C	.005	.007	0.13	0.18
D	.116	.120	2.95	3.05
e	.0256 BASIC		0.65 BASIC	
e1	.0128 BASIC		0.33 BASIC	
E	.116	.120	2.95	3.05
H	.188	.198	4.78	5.03
L	.016	.026	0.41	0.66
θ	0°	6°	0°	6°



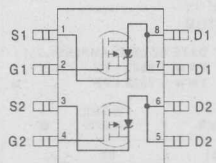
Case style Micro8

## Circuit Diagrams

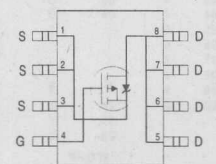
## Tape and Reel



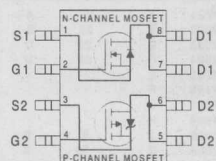
Dual N



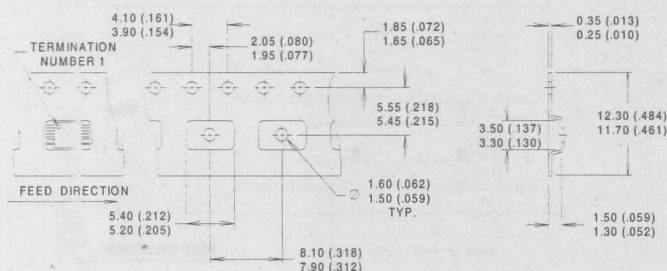
Dual P



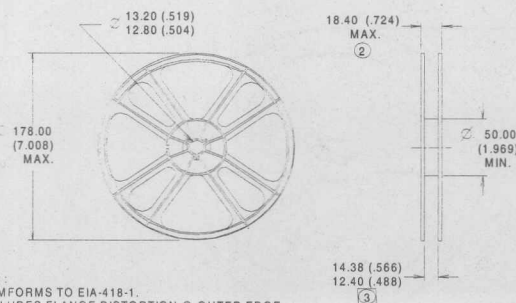
Discrete



N / P



- NOTES:  
1. CONFORMS TO EIA-481-1.  
2. CONTROLLING DIMENSION : MILLIMETER.

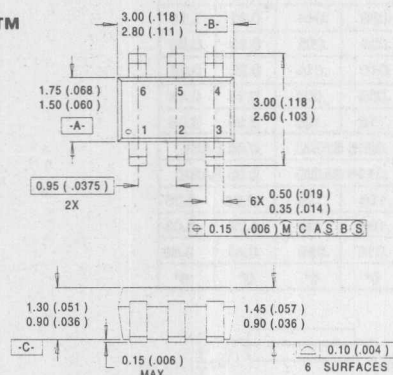


- NOTES:  
1. CONFORMS TO EIA-418-1.  
2. INCLUDES FLANGE DISTORTION @ OUTER EDGE.  
3. DIMENSION MEASURED @ HUB.  
4. CONTROLLING DIMENSION : MILLIMETER.

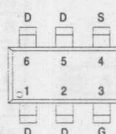


## HEXFET® Power MOSFETs

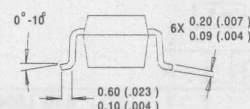
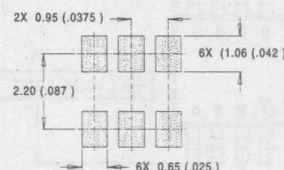
### H2.5 – Micro6™



#### LEAD ASSIGNMENTS



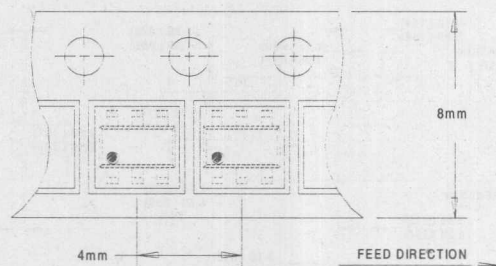
#### RECOMMENDED FOOTPRINT



#### NOTES :

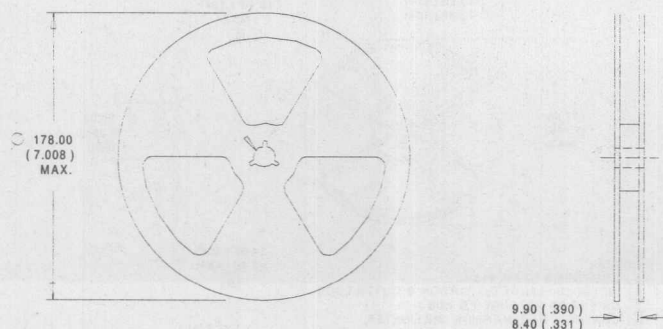
1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M-1982.
2. CONTROLLING DIMENSION : MILLIMETER.
3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).

### Tape and Reel



#### NOTES :

1. OUTLINE CONFORMS TO EIA-481 & EIA-541.

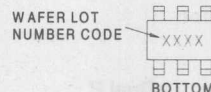
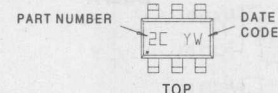


#### NOTES:

1. CONTROLLING DIMENSION : MILLIMETER.
2. OUTLINE CONFORMS TO EIA-481 & EIA-541.

### Part Marking

EXAMPLE : THIS IS AN IRLMS6702



PART NUMBER EXAMPLES: DATE CODE EXAMPLES:

2A = IRLMS1902  
2B = IRLMS1503  
2C = IRLMS6702  
2D = IRLMS5703

YWW = 9603 = 6C  
YWW = 9632 = FF

YEAR	Y	WORK WEEK	W
2001	1	01	A
2002	2	02	B
2003	3	03	C
2004	4	04	D
2005	5		
1996	6		
1997	7		
1998	8		
1999	9		
2000	0	24	X
		25	Y
		26	Z

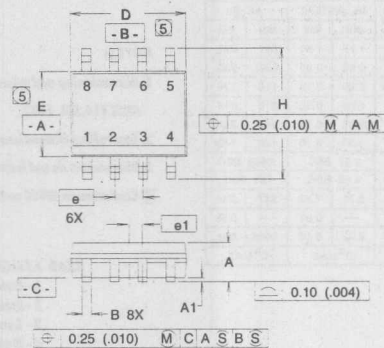
YEAR	Y	WORK WEEK	W
2001	A	27	A
2002	B	28	B
2003	C	29	C
2004	D	30	D
2005	E		
1996	F		
1997	G		
1998	H		
1999	J		
2000	K	50	X
		51	Y
		52	Z

work week = (1-26) if preceded by last digit of calendar year  
work week = (27-52) if preceded by a letter

# HEXFET® Power MOSFETs

International  
IOR Rectifier

H3

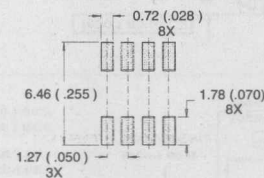


## NOTES:

1. Dimensioning and tolerancing per ANSI Y14.5M-1982
2. Controlling dimension: INCH
3. Dimensions are shown in millimeters (INCHES)
4. Outline conforms to JEDEC outline MS-012AA
5. Dimension does not include mold protrusions;  
Mold protrusions not to exceed 0.25 (.006)
6. Dimension is the length of lead for soldering to a substrate

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
B	.014	.018	0.36	0.46
C	.0075	.0098	0.19	0.25
D	.189	.196	4.80	4.98
E	.150	.157	3.81	3.99
e	.050 BASIC		1.27 BASIC	
e1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.011	.019	0.28	0.48
L	0.16	.050	0.41	1.27
θ	0°	8°	0°	8°

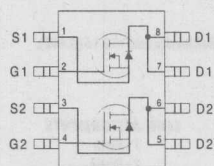
## RECOMMENDED FOOTPRINT



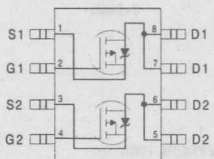
Case style SO-8

## Circuit Diagrams

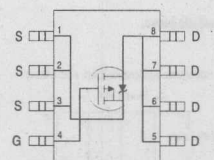
## Tape and Reel



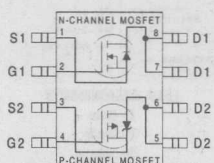
Dual N



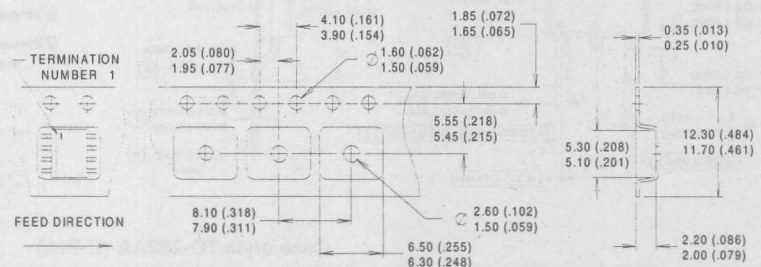
Dual P



Discrete



N/P



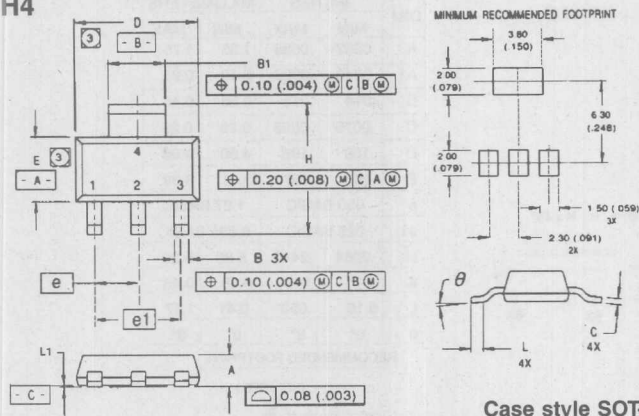
## NOTES:

1. CONFORMS TO EIA-481-1
2. INCLUDES FLANGE DISTORTION @ OUTER EDGE
3. DIMENSIONS MEASURED @ HUB
4. CONTROLLING DIMENSION : METRIC

Case Outlines J-9

# HEXFET® Power MOSFETs

H4



Case style SOT-223

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.55	1.80	.061	.071
B	0.65	0.85	.026	.033
B1	2.95	3.15	.116	.124
C	0.25	0.35	.010	.014
D	6.30	6.70	.248	.264
E	3.30	3.70	.130	.146
e	2.30 BSC		.0905 BSC	
e1	4.60 BSC		.181 BSC	
H	6.71	7.29	.267	.284
L	—	0.91	—	.036
L1	0.02	0.10	.0008	.004
θ	10° MAX		10° MAX	

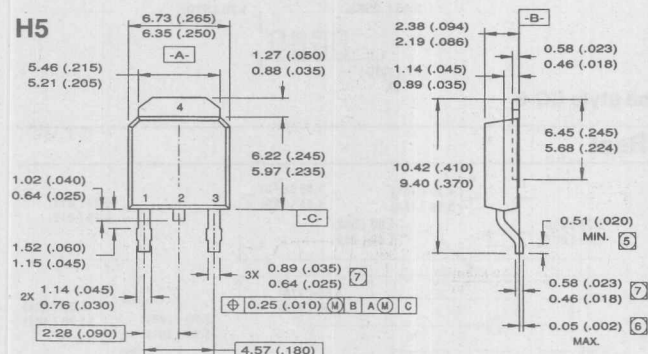
**NOTES:**

1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling Dimension: INCH.
3. Dimensions do not include mold flash.
4. Conforms to JEDEC outline TO-261AA.

**LEAD ASSIGNMENTS**

- 1 - Gate
- 2 - Drain
- 3 - Source
- 4 - Drain

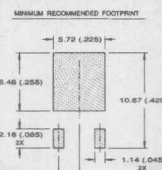
H5



Case style TO-252AA (D-Pak)

**NOTES:**

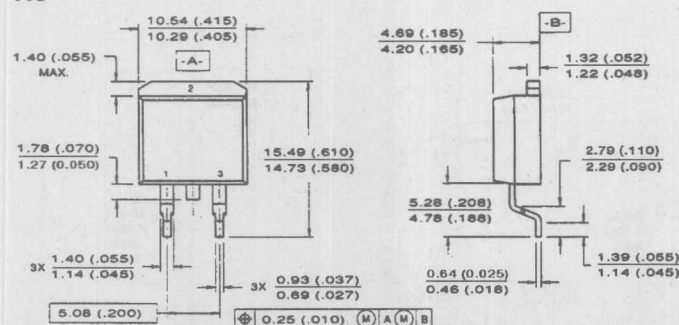
1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling Dimension: INCH.
3. Dimensions do not include mold flash.
4. Conforms to JEDEC outline TO-252AA.
5. Dimension is the length of lead for soldering to a substrate.
6. For positive contact at mounting.
7. Dimension does not include solder dip. Solder dip max +0.16 (0.006).



**LEAD ASSIGNMENTS**

- 1 - Gate
- 2 - Drain
- 3 - Source
- 4 - Drain

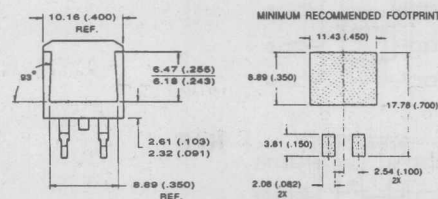
H6



Case style D²Pak (SMD-220, TO-263)

**NOTES:**

1. Dimensions after solder dip.
2. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
3. Controlling Dimension: INCH.
4. Heatsink and lead dimensions do not include burrs.

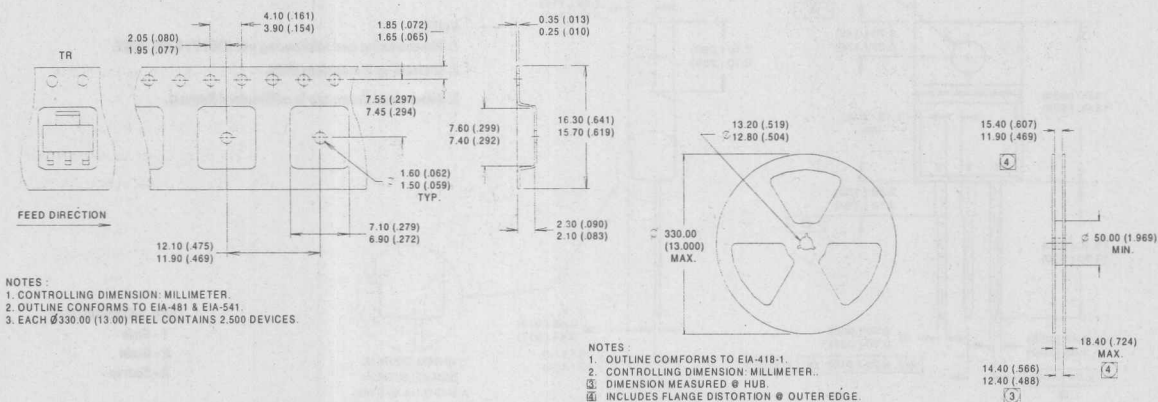


**LEAD ASSIGNMENTS**

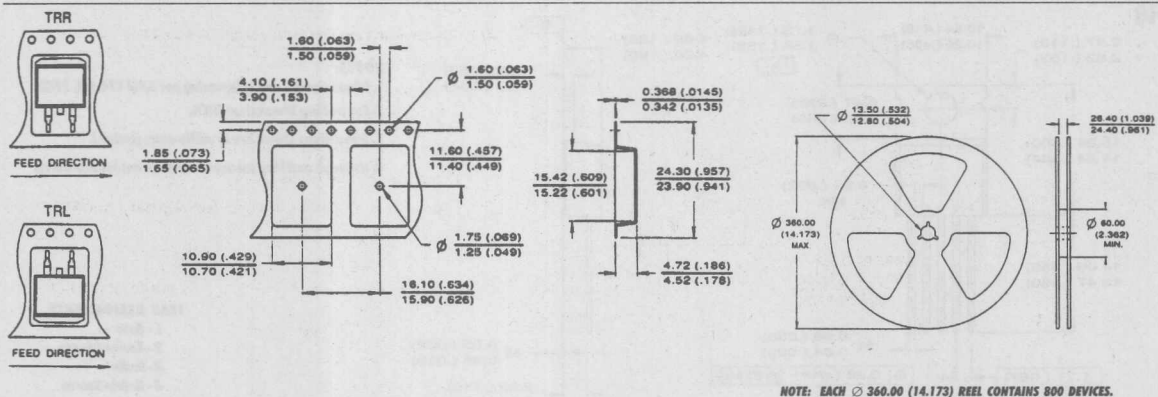
- 1 - Gate
- 2 - Drain
- 3 - Source

# HEXFET® Power MOSFETs

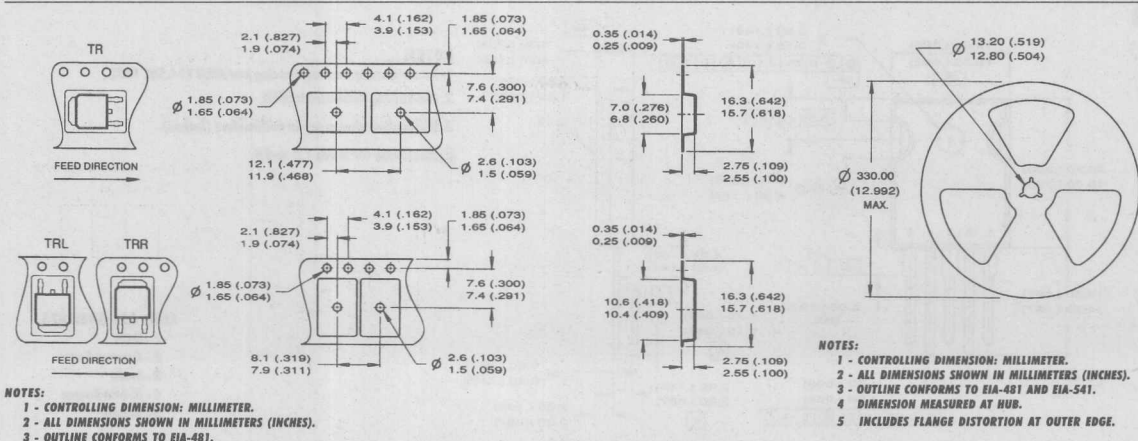
## Tape and Reel – SOT-223



## Tape and Reel – D<sup>2</sup>Pak (SMD-220, TO-263)



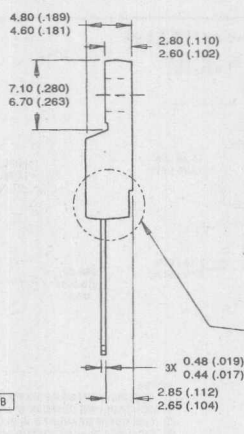
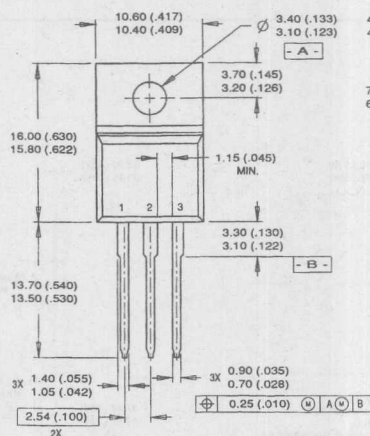
## Tape and Reel – TO-252AA (D-Pak)





# HEXFET® Power MOSFETs

H7



**NOTES:**

1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling Dimension: INCH.
3. Dimensions shown are in millimeters (inches).

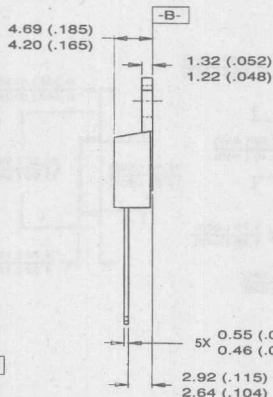
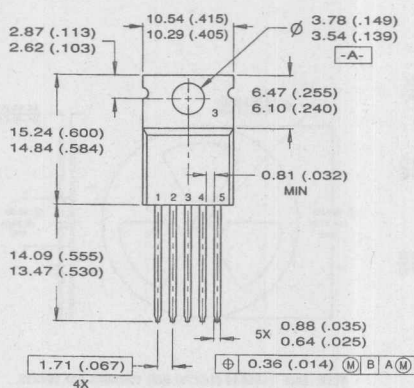
MINIMUM CREEPAGE  
DISTANCE BETWEEN  
A-B-C-D = 4.80 (.189)

### LEAD ASSIGNMENTS

- 1 - Gate  
2 - Drain  
3 - Source

**Case style TO-220 FullPak**

H8



**NOTES:**

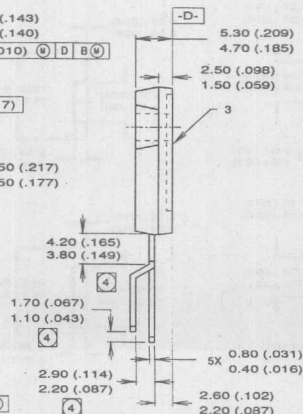
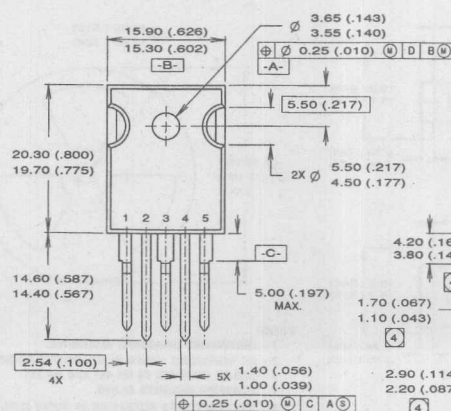
1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.  
2. Controlling Dimension: INCH.  
3. Dimensions shown are in millimeters (inches).  
4. Heatsink and lead measurements do not include burrs.

## LEAD ASSIGNMENTS

- 1 - Gate  
2 - Current Sense  
3 - Drain  
4 - Kelvin Source  
5 - Source

**Case style TO-220, 5L, HEXSense**

H9



**NOTES:**

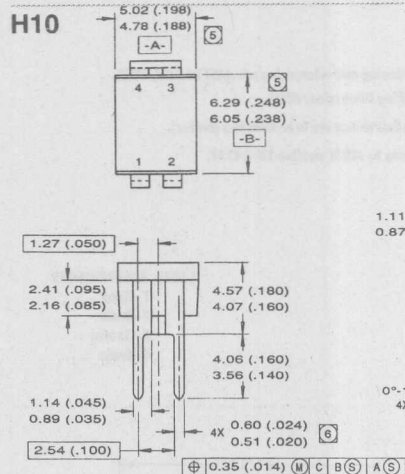
1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling Dimension: INCH.
3. Dimensions shown are in millimeters (inches).
- ④ Dimension for loads 1, 3 and 5.

### LEAD ASSIGNMENTS

- 1 - Gate  
2 - Current Sense  
3 - Drain  
4 - Kelvin Source  
5 - Source

**Case style TO-247AC, 5L, HEXSense**

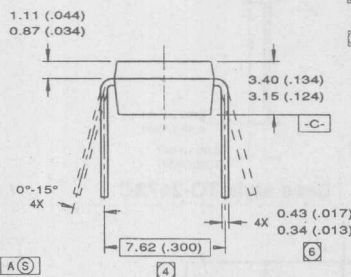
## HEXFET® Power MOSFETs



**Case style HD-1**

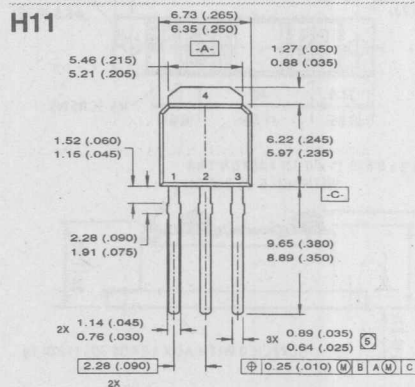
**NOTES:**

1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling Dimension: INCH.
3. Dimensions shown are in millimeters (inches).
- ④ Measured with the leads constrained to be perpendicular to the datum plane C.
- ⑤ Dimension does not include mold protrusions. Mold protrusions shall not exceed 0.25 (.010).
- ⑥ Dimension does not include solder dip. Solder dip max + 0.16 (.006).



## LEAD ASSIGNMENTS

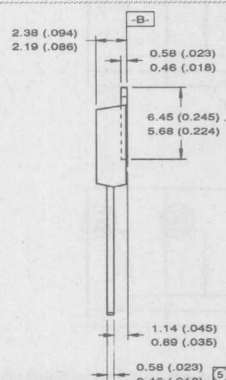
- 1 - Gate  
2 - Source  
3 - Drain  
4 - Drain



**Case style TO-251AA (I-Pak)**

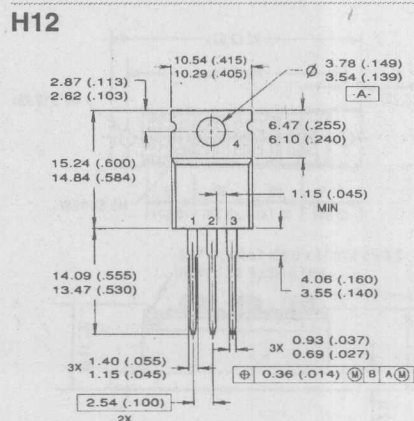
**NOTES:**

1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling Dimension: INCH.
3. Dimensions shown are in millimeters (inches).
4. Outline conforms to JEDEC outlines TO-251AA.
5. Dimension does not include solder dip. Solder dip max + 0.16 (.006).



## LEAD ASSIGNMENTS

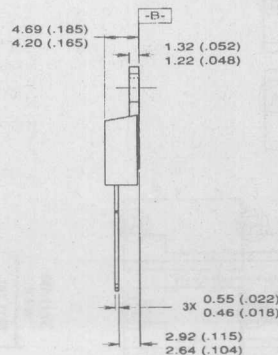
- 1 - Gate  
2 - Drain  
3 - Source  
4 - Drain



**Case style TO-220AB**

**NOTES:**

1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling Dimension: INCH.
3. Dimensions shown are in millimeters (inches).
4. Outline conforms to JEDEC outline TO-220AB.
5. Heat sink and lead measurements do not include burrs.

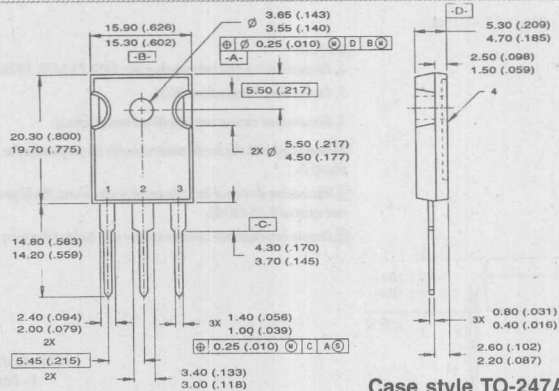


### LEAD ASSIGNMENTS

- 1 - Gate  
2 - Drain  
3 - Source  
4 - Drain

# HEXFET® Power MOSFETs

H13



**Case style TO-247AC**

**NOTES:**

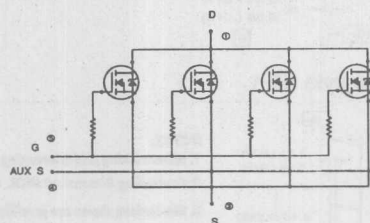
1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling Dimension: INCH.
3. Dimensions shown are in millimeters (inches).
4. Conforms to JEDEC outline TO-247AC.

## LEAD ASSIGNMENTS

- 1 - Gate  
2 - Drain  
3 - Source  
4 - Drain

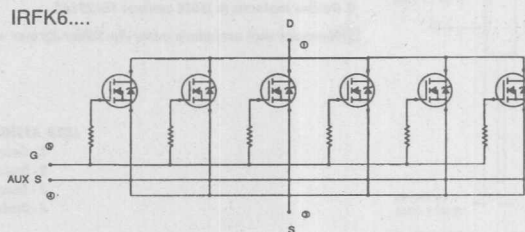
H14

IRFK4....

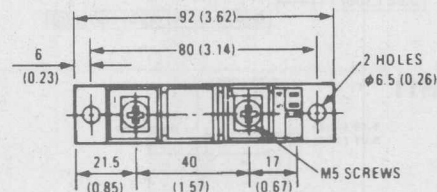


**NOTES:**

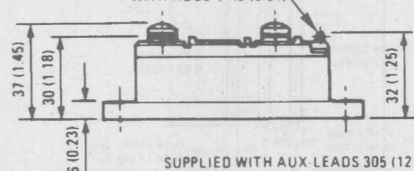
1. Similar to JEDEC outline TO-240AA.



IRFK6....



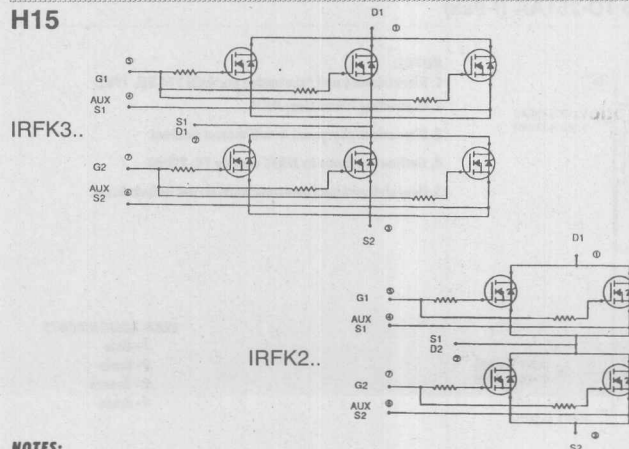
2.8 x 0.8 (0.11 x 0.03) FASTON TAB  
WITH HOLE  $\phi 1.2$  (0.04)



SUPPLIED WITH AUX. LEADS 305 (12 0) Lg.

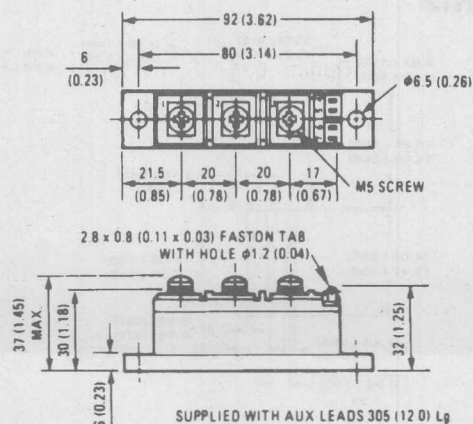
**Case style Single Switch**

## H15



**NOTES:**

1. Similar to JEDEC outline TO-240AA.



SUPPLIED WITH AUX LEADS 305 (12 0) Lg

### Case style Half Bridge

## HEXFET® Power MOSFETs: TO-220 Optional Leadforms

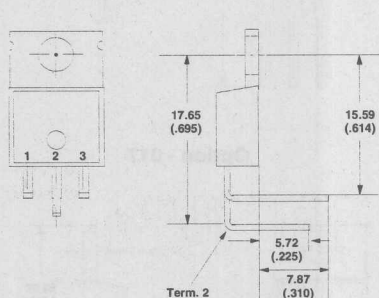
International Rectifier offers standard leadform in various configurations, allowing the flexibility to meet a variety of design requirements. IR's standard leadform offerings are illustrated here and on page 118. To order a device with leadforming, indicate the desired TO-220 HEXFET part number, then append the three-digit number of the leadform you require, e.g. to order an IRF530 with an Option-004 leadform, use the number IRF530-004. For each leadform, the correct code is given below the illustration.

### NOTES:

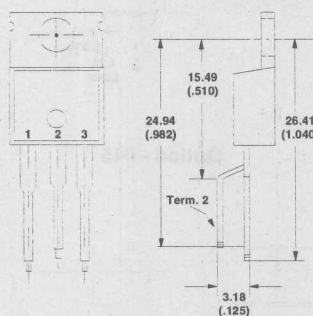
#### 1. Lead Assignments

- 1 - Gate
- 2 - Drain
- 3 - Source

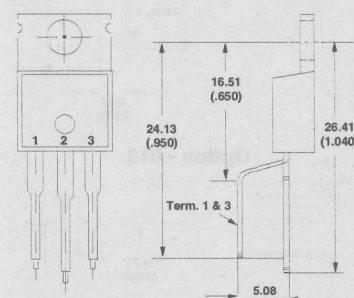
#### 2. All dimensions in millimeters (inches)



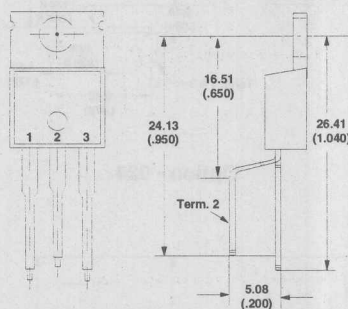
Option - 002



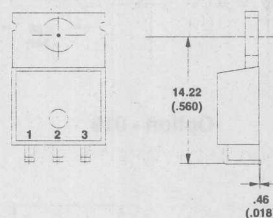
Option - 003



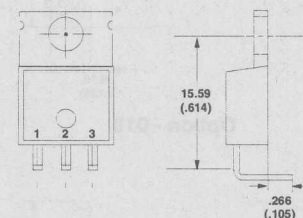
Option - 004



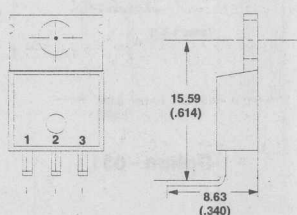
Option - 005



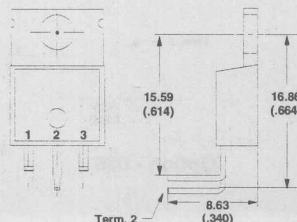
Option - 006



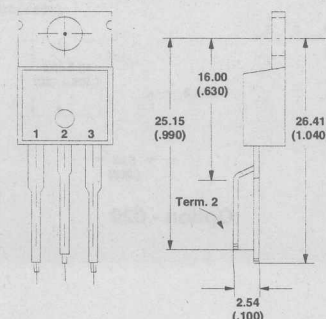
Option - 009



Option - 010



Option - 011



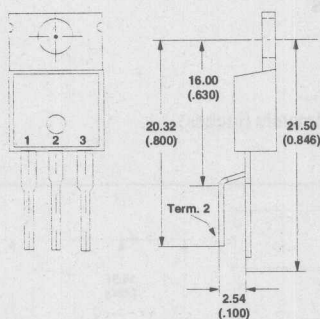
Option - 012



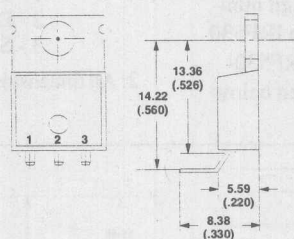
# HEXFET® Power MOSFETs: TO-220 Optional Leadforms

## TO-220 Optional Leadforms

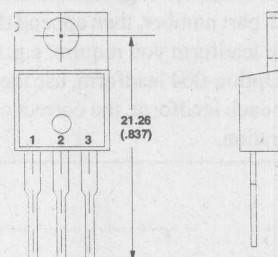
Refer to page J-15 for order information.



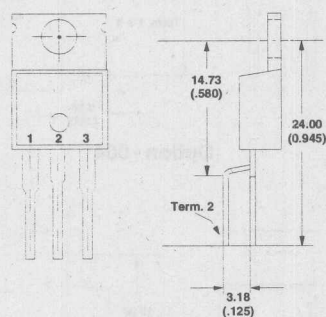
Option - 013



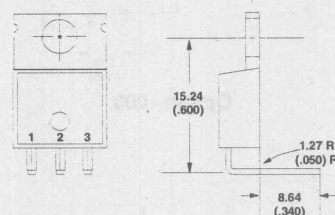
Option - 015



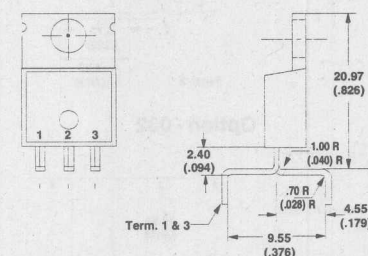
Option - 017



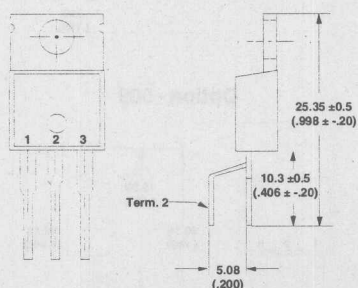
Option - 018



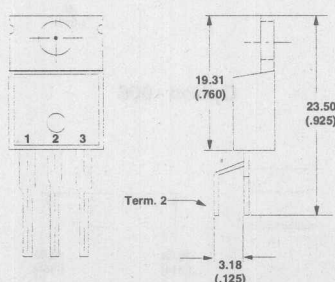
Option - 019



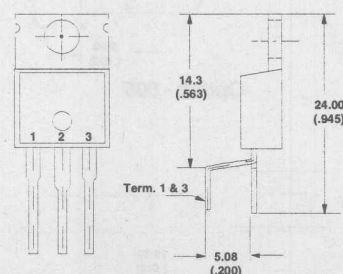
Option - 024



Option - 029



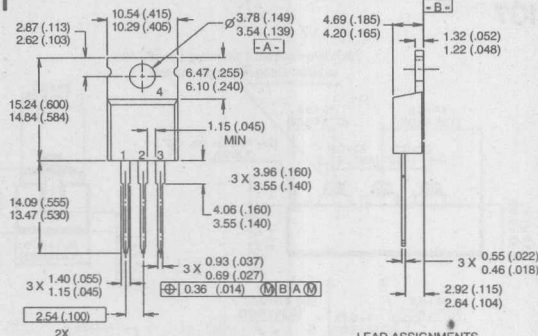
Option - 030



Option - 031

# IGBTs and IGBT UltraFast™ Diodes, CoPack

## IG1

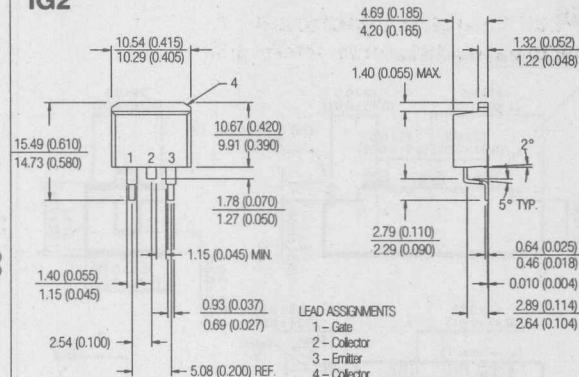


- NOTES:
1. Dimensioning and tolerancing per ANSI Y14.5M, 1982
  2. Controlling dimension: INCH
  3. Dimensions are shown in millimeters (inches)
  4. Conforms to JEDEC outline TO-220AB

LEAD ASSIGNMENTS  
1 - Gate  
2 - Collector  
3 - Emitter  
4 - Collector

### Case style TO-220AB

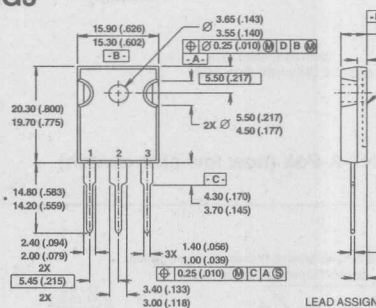
## IG2



LEAD ASSIGNMENTS  
1 - Gate  
2 - Collector  
3 - Emitter  
4 - Collector

### Case style D<sup>2</sup>Pak (SMD-220, TO-263)

## IG3



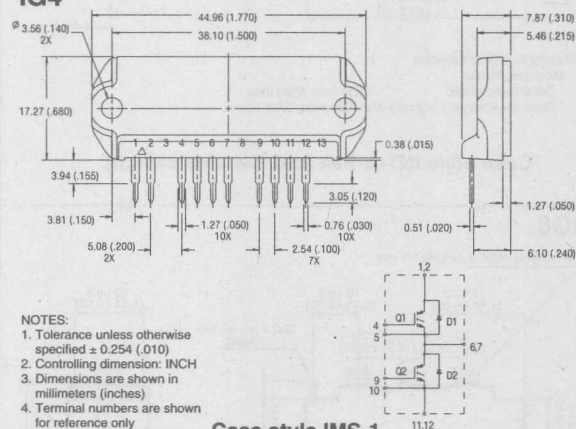
- NOTES:
1. Dimensioning and tolerancing per ANSI Y14.5M, 1982
  2. Controlling dimension: INCH
  3. Dimensions are shown in millimeters (inches)
  4. Conforms to JEDEC outline TO-247AC

LEAD ASSIGNMENTS  
1 - Gate  
2 - Collector  
3 - Emitter  
4 - Collector

\* Longer leaded (20mm) version available as TO-247AD.  
To order add '-E' suffix to part number.

### Case style TO-247AC

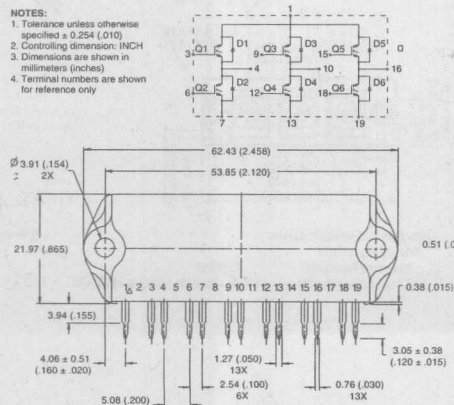
## IG4



- NOTES:
1. Tolerance unless otherwise specified  $\pm 0.254$  (0.010)
  2. Controlling dimension: INCH
  3. Dimensions are shown in millimeters (inches)
  4. Terminal numbers are shown for reference only

### Case style IMS-1

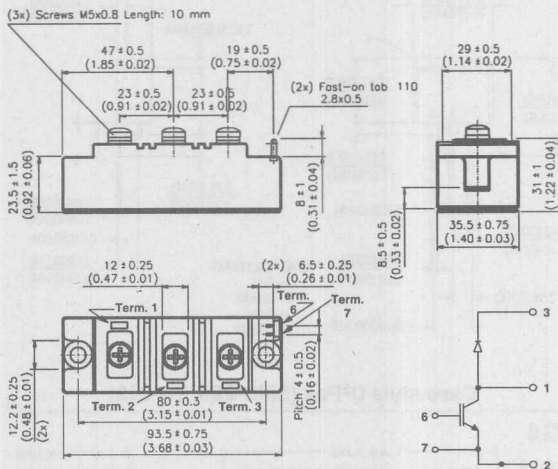
## IG5



### Case Style IMS-2

# IGBTs and IGBT UltraFast™ Diodes, CoPack

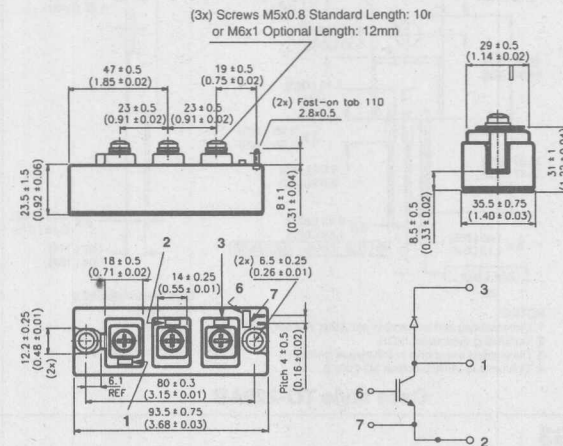
## IG6



**Mechanical Specifications**  
Mounting torque  
Case-to-heatsink: 3Nm min; 4Nm max  
Case-to-terminal 1 - 2 and 3: 2.5Nm min; 3Nm max

Case style INT-A-Pak (old low side switch)

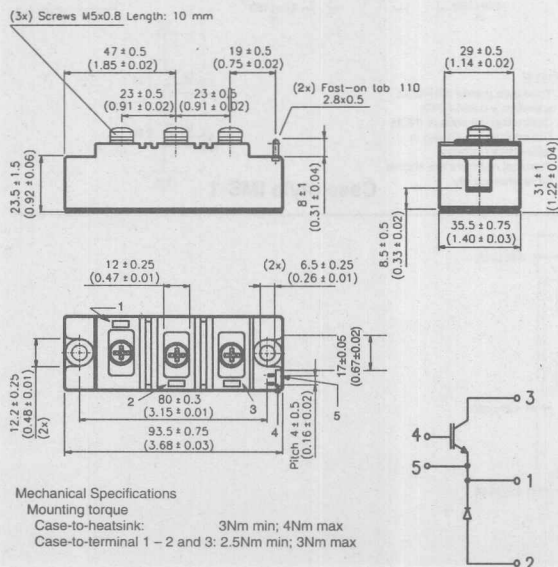
## IG7



**Mechanical Specifications**  
Mounting torque  
Case-to-heatsink: 3Nm min; 4Nm max  
Case-to-terminal 1 - 2 and 3: 2.5Nm min; 3Nm max

Case style INT-A-Pak (new low side switch)

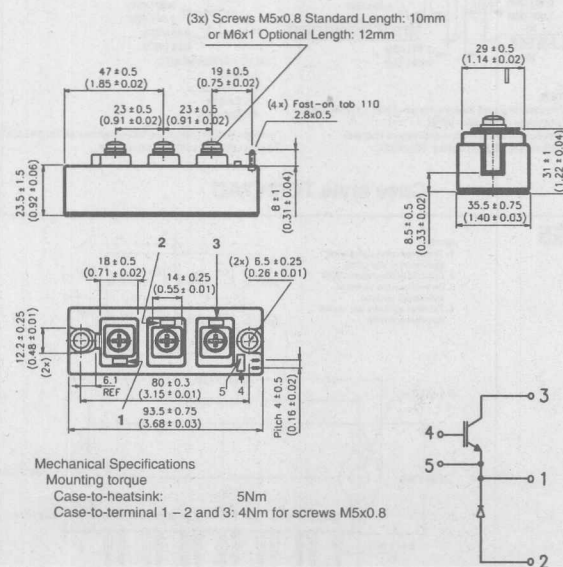
## IG8



**Mechanical Specifications**  
Mounting torque  
Case-to-heatsink: 3Nm min; 4Nm max  
Case-to-terminal 1 - 2 and 3: 2.5Nm min; 3Nm max

Case style INT-A-Pak (old high side switch)

## IG9



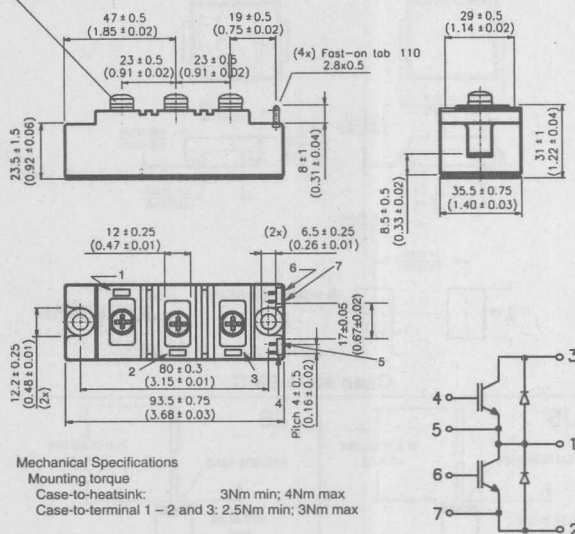
**Mechanical Specifications**  
Mounting torque  
Case-to-heatsink: 5Nm  
Case-to-terminal 1 - 2 and 3: 4Nm for screws M5x0.8

Case style INT-A-Pak (new high side switch)

## IGBTs and IGBT UltraFast™ Diodes, CoPack

## IG10

(3x) Screws M5x0.8 Length: 10 mm

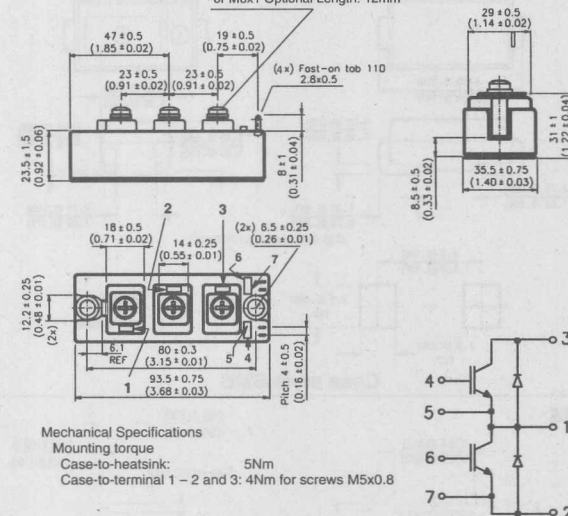


**Mechanical Specifications**  
**Mounting torque**  
 Case-to-heatsink: 3Nm min; 4Nm max  
 Case-to-terminal 1 – 2 and 3: 2.5Nm min; 3Nm max

**Case style INT-A-Pak (old half bridge)**

## IG11

(3x) Screws M5x0.8 Standard Length: 10mm  
or M6x1 Optional Length: 12mm

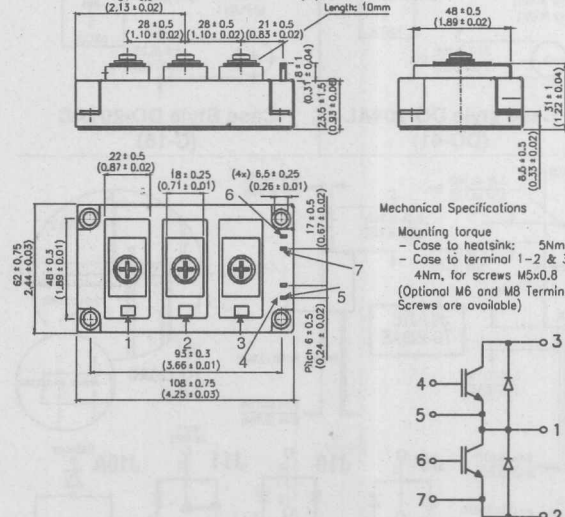


**Mechanical Specifications**  
**Mounting torque**  
 Case-to- heatsink: 5Nm  
 Case-to-terminal 1 – 2 and 3: 4Nm for screws M5x0.8

**Case style INT-A-Pak (new half bridge)**

## IG12

54 ± 0.5 (3.13 ± 0.03) (3x) Screws M5x0.8 Length: 10mm



**Mechanical Specifications**

Mounting torque

- Case to heatsink: 5Nm
- Case to terminal 1-2 & 3: 4Nm, for screws M5x0.8

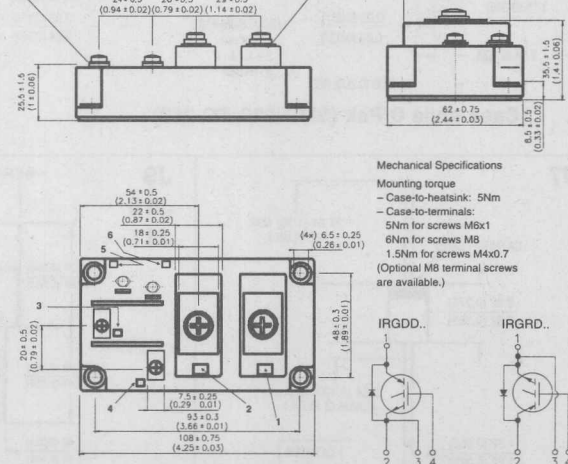
(Optional M6 and M8 Terminal Screws are available)

**Case style Double INT-A-Pak (new half bridge)**

## IG13

(2x) Screws M4x0,7 Length 8 mm

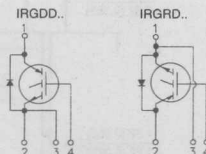
(2x) Screws M6x1 Standoff  
Length 14mm



**Mechanical Specifications**

**Mounting torque**

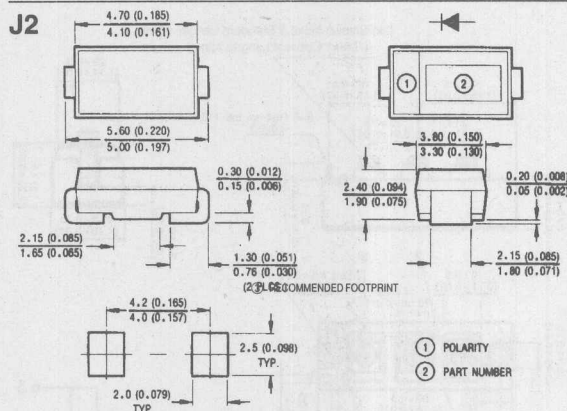
- Case-to- heatsink: 5Nm
- Case-to-terminals:  
5Nm for screws M6x1  
6Nm for screws M8  
1.5Nm for screws M4x0.7  
(Optional M8 terminal screws  
are available.)



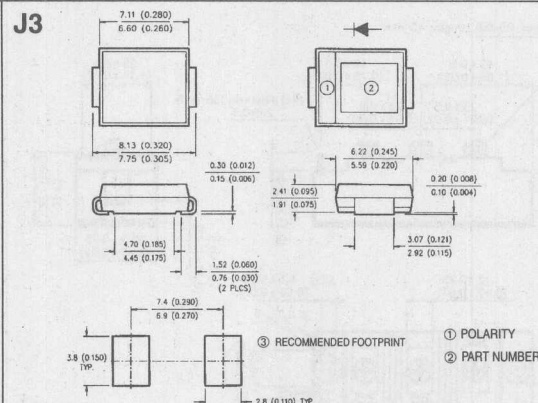
**Case style Double INT-A-Pak (single switch diode  
single switch complementary diode)**



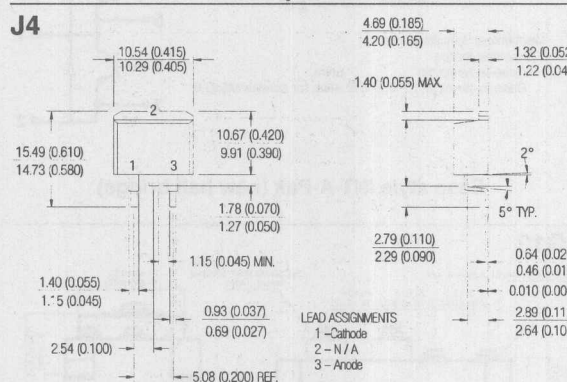
# UltraFast™ Recovery, HEXFRED and Schottky Diodes



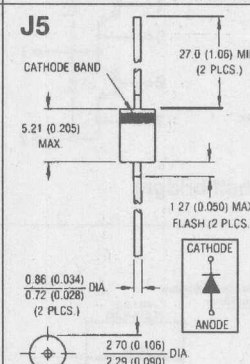
Case style SMB



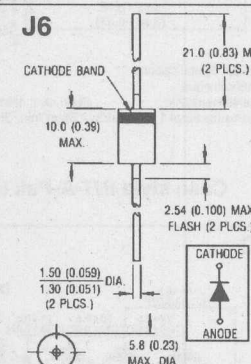
Case style SMC



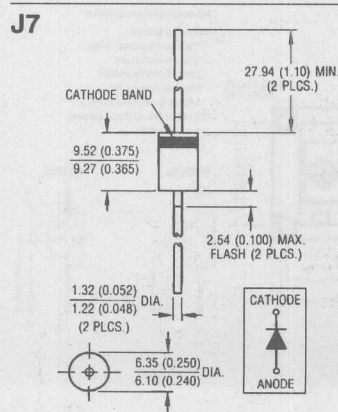
Case style D²Pak (SMD-220, TO-263)



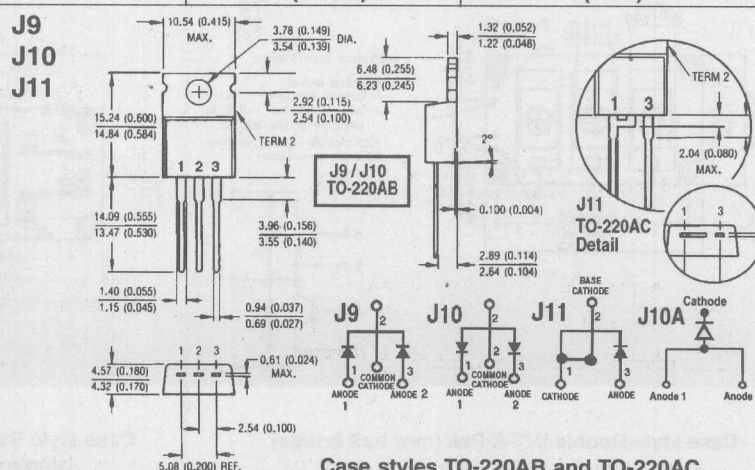
Case style DO-204AL  
(DO-41)



Case style DO-201AD  
(C-16)

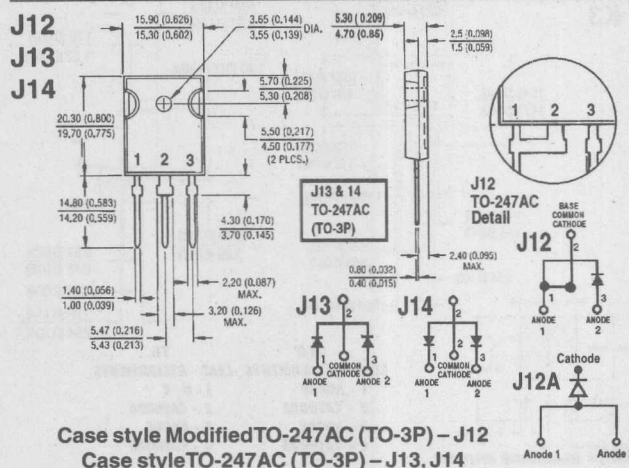


Case style DO-204AR

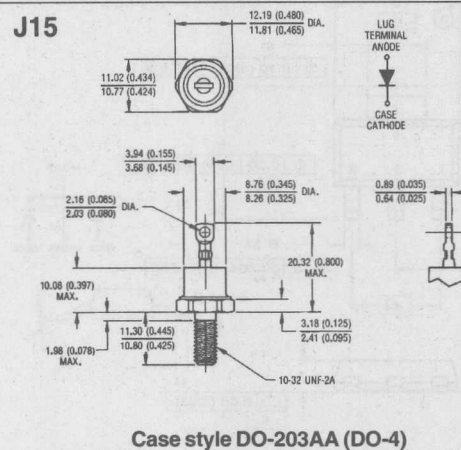


Case styles TO-220AB and TO-220AC

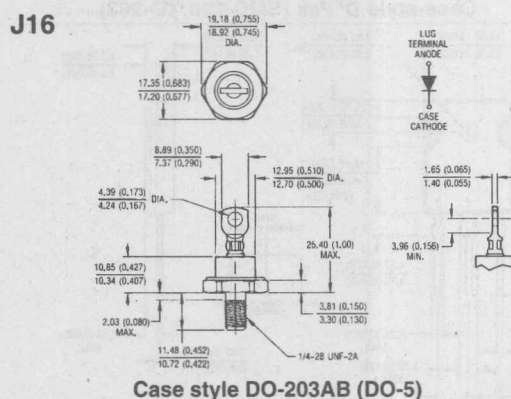
## HEXFRED™ and Schottky Diodes



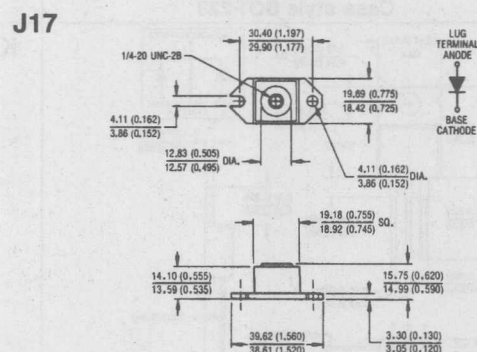
**Case style Modified TO-247AC (TO-3P) – J12**  
**Case style TO-247AC (TO-3P) – J13, J14**



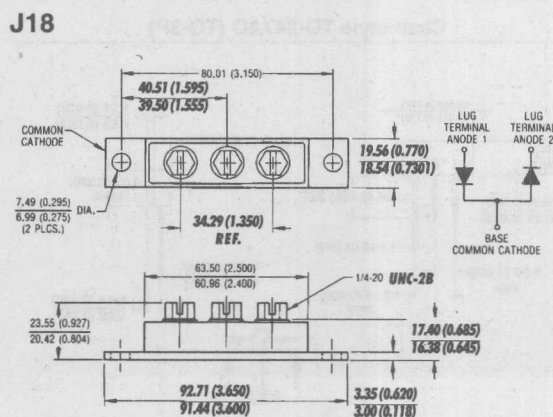
**Case style DO-203AA (DO-4)**



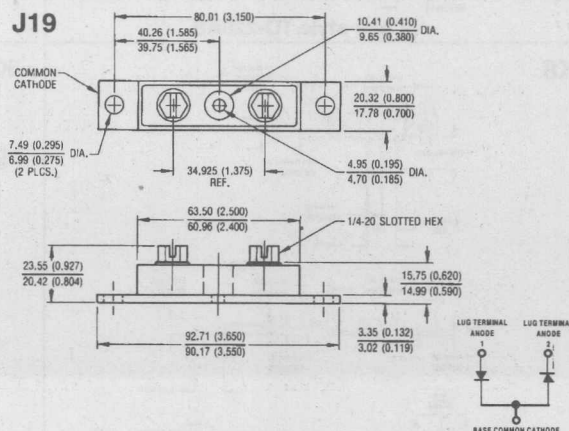
**Case style DO-203AB (DO-5)**



### Case style Half Pak Module



**Case style Modified TO-244AB Isolated**



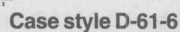
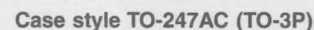
**Case style Modified TO-244AB Non-Isolated**

**K1**

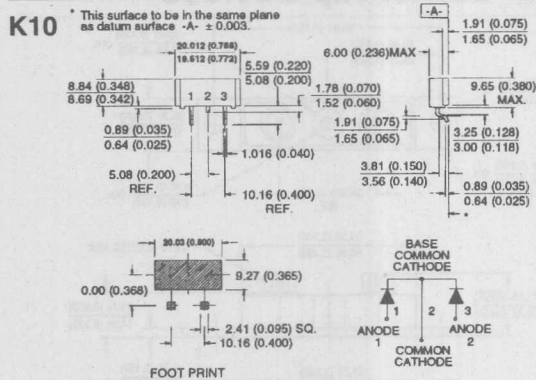
Technical drawing of a vacuum tube pinout and dimensions. The drawing includes a top view of the tube base with dimensions D, B1, H, B 3X, and e1. It also shows a side view with dimensions L1, A, L, and 4X. A cathode ray diagram is included with labels CATHODE, ANODE 1, and ANODE 2. The drawing is labeled K1.



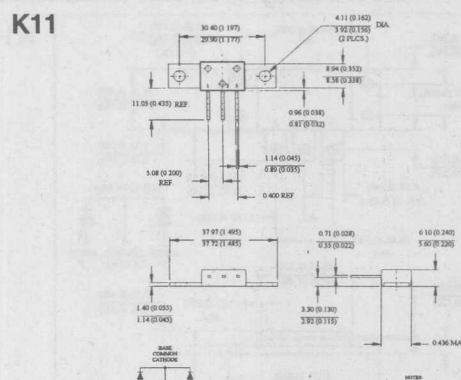
**Case style D<sup>2</sup>Pak (SMD-220, TO-263)**



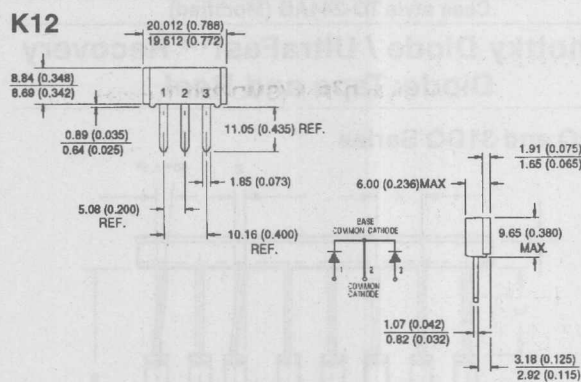
# Schottky Diode/ HEXFRED™ Center Tap Devices



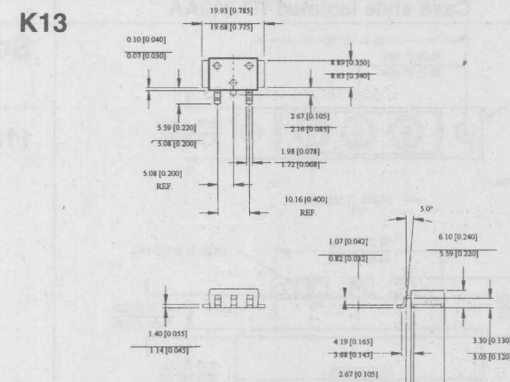
Case style D61-6SL



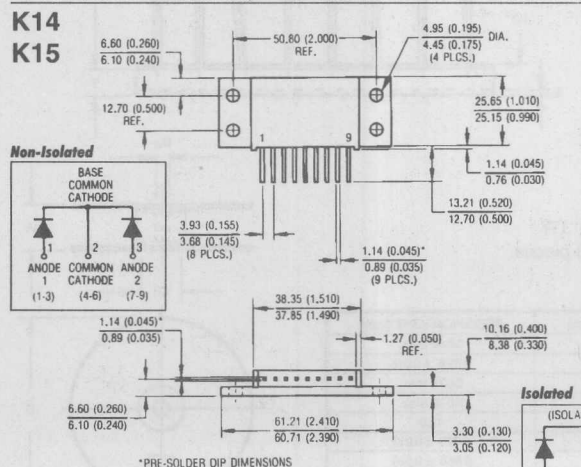
Case style D61-8



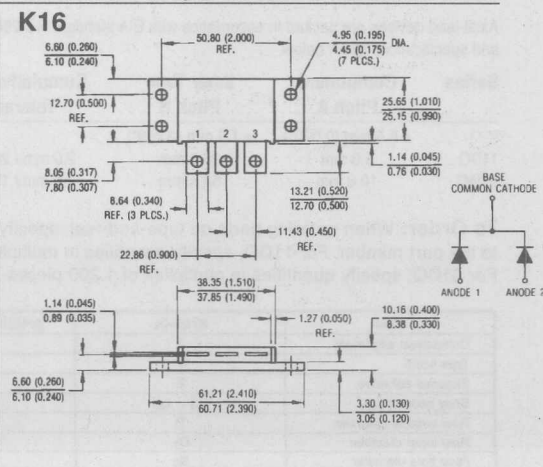
Case style D61-8SM



Case style D61-8SL



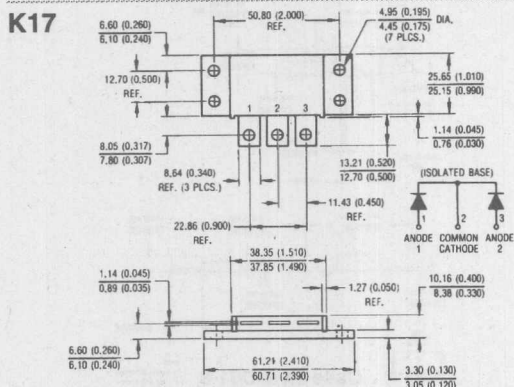
Case style D-60  
Case style Isolated D-60



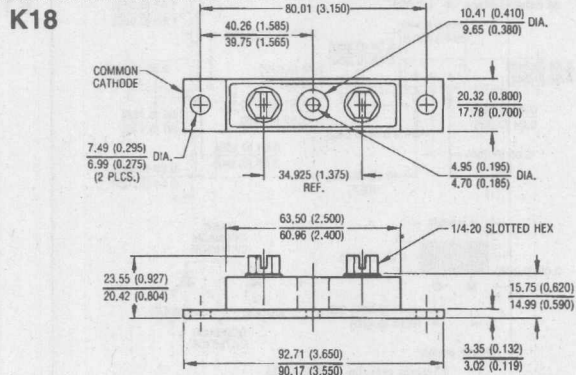
Case style TO-249AA



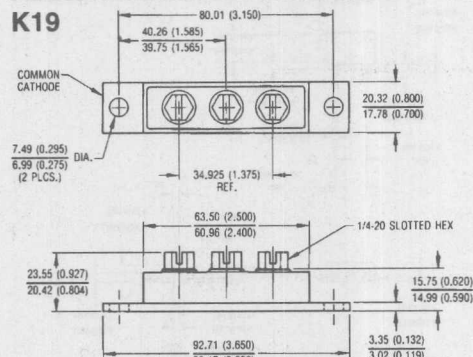
## Schottky Diode/ HEXFRED™ Center Tap Devices



**Case style Isolated TO-249AA**



**Case style TO-244AB (Modified)**

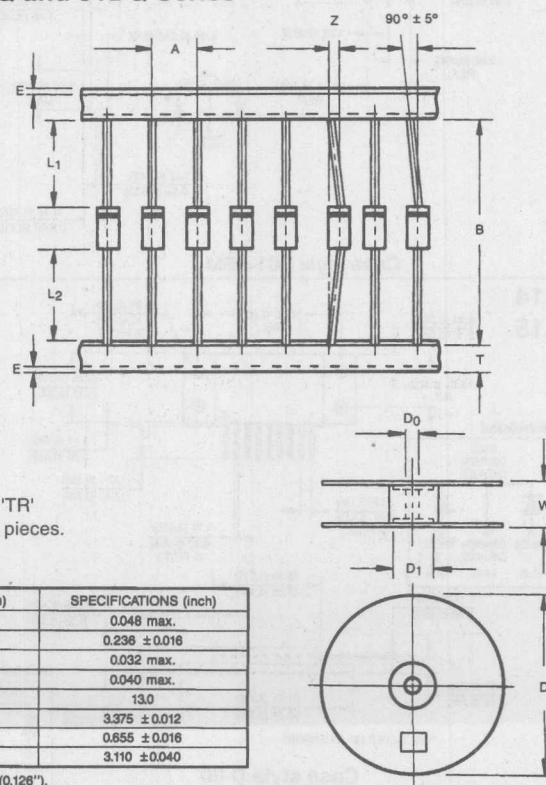


**Case style TO-244AB (Modified)**

Axial-lead devices are packed in accordance with EIA standard RS-296-D and specifications given below.

Series	Component Pitch A	Inner Tape Pitch B	Cumulative Pitch Tolerance
	± 0.5 mm (0.020")	± 1.5 mm (0.059")	
11DQ	5.0 mm	26.0 mm	2.0 mm / 20 pitch
31DQ	10.0 mm	52.4 mm	2.0 mm / 10 pitch

**To Order:** When ordering parts on tape-and-reel, specify by adding 'TR' to the part number. For 11DQ, specify quantities in multiples of 5,000 pieces. For 31DQ, specify quantities in multiples of 1,200 pieces.



ITEM	SYMBOL	SPECIFICATIONS (mm)	SPECIFICATIONS (inch)
Component alignment	Z	1.2 max.	0.048 max.
Tape width	T	6.0 ± 0.4	0.236 ± 0.016
Exposed adhesive	E	0.8 max.	0.032 max.
Body eccentricity	$IL_1 - L_2$	1.0 max.	0.040 max.
Reel outside diameter	D	330.0	13.0
Reel inner diameter	D <sub>i</sub>	85.7 ± 0.3	3.375 ± 0.012
Feed hole diameter	D <sub>0</sub>	16.6 ± 0.4	0.655 ± 0.016
Reel width	W	79.0 ± 1.0	3.110 ± 0.040

**NOTE:** 1. Each component lead shall be sandwiched between tapes for a minimum of 3.2 mm (0.126").  
2. The reel width "W" for 26 mm taping is 50.0 ± 1.0 mm (1.97" ± 0.040")

# Schottky Diode / UltraFast™ Recovery Diode: Tape and Reel

SMB

## IDENTIFICATION

### MARKING and IDENTIFICATION

EACH DEVICE HAS 4 CHARACTERS, CONFIGURED TWO DIGITS ON TWO ROWS, FOR IDENTIFICATION. THE FIRST ROW DESIGNATES THE DEVICE AS MANUFACTURED BY INTERNATIONAL RECTIFIER AS INDICATED BY THE LETTERS "IR". THE SECOND ROW INDICATES THE CURRENT RATING AND VOLTAGE/PROCESS. SEE THE DRAWING BELOW FOR MARKING CODE.

FIRST ROW  
IR

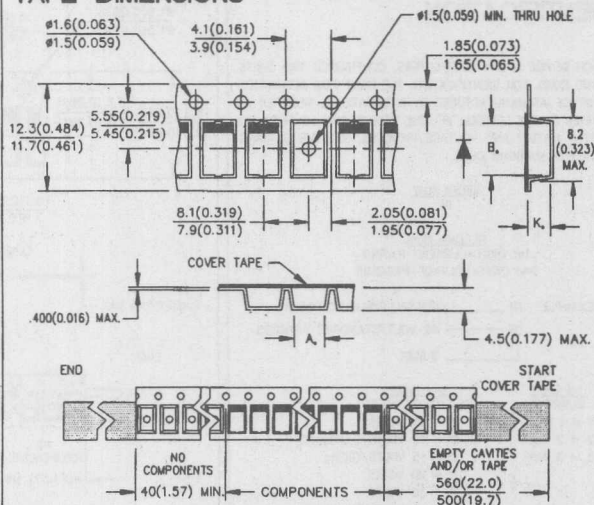
SECOND ROW  
1st DIGIT=CURRENT RATING  
2nd DIGIT=VOLTAGE/PROCESS

EXAMPLE: IR — INTERNATIONAL RECTIFIER  
1F — 40 VOLT/STANDARD PROCESS  
— 1 AMP

1st DIGIT CURRENT	2nd DIGIT VOLTAGE/PROCESS
1 = 1 AMP	A = 12 VOLTS
2 = 2 AMP	B = 15 VOLTS/STANDARD
3 = 3 AMP	C = 15 VOLTS/ORG'ing
	D = 20 VOLTS
	E = 30 VOLTS
	F = 40 VOLTS/STANDARD
	G = 40 VOLTS/B30'
	H = 60 VOLTS
	J = 100 VOLTS
	K = 150 VOLTS
	L = 200 VOLTS

## PACKAGING

### TAPE DIMENSIONS



## ORDERING INFORMATION

### 10BQ SERIES-TAPE AND REEL

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 3000 PIECES).

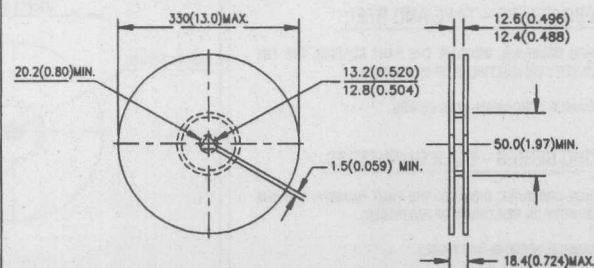
EXAMPLE: 10BQ040TR-6000 PIECES.

### 10BQ SERIES-BULK QUANTITIES

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 250 PIECES).

EXAMPLE: 10BQ040-500 PIECES.

## REEL DIMENSIONS



Conforms to EIA-481-Rev. A

# Schottky Diode / UltraFast™ Recovery Diode: Tape and Reel

SMC

## IDENTIFICATION

### MARKING and IDENTIFICATION

EACH DEVICE HAS 4 CHARACTERS, CONFIGURED TWO DIGITS ON TWO ROWS, FOR IDENTIFICATION. THE FIRST ROW DESIGNATES THE DEVICE AS MANUFACTURED BY INTERNATIONAL RECTIFIER AS INDICATED BY THE LETTERS "IR". THE SECOND ROW INDICATES THE CURRENT RATING AND VOLTAGE/PROCESS. SEE THE DRAWING BELOW FOR MARKING CODE.

FIRST ROW  
IR

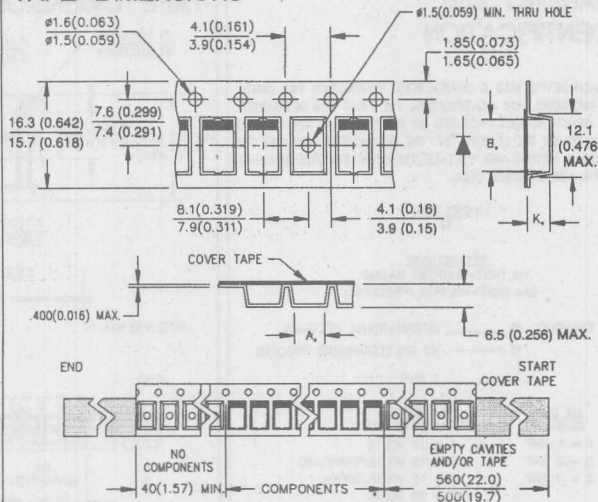
SECOND ROW  
1st DIGIT=CURRENT RATING  
2nd DIGIT=VOLTAGE/PROCESS

EXAMPLE: IR \_\_\_\_\_ INTERNATIONAL RECTIFIER  
3F \_\_\_\_\_ 40 VOLT/STANDARD PROCESS  
\_\_\_\_\_ 3 AMP

1st DIGIT CURRENT	2nd DIGIT VOLTAGE/PROCESS
1 = 1 AMP	A = 12 VOLTS
2 = 2 AMP	B = 15 VOLTS/STANDARD
3 = 3 AMP	C = 15 VOLTS/OR'ing
	D = 20 VOLTS
	E = 30 VOLTS
	F = 40 VOLTS/STANDARD
	G = 40 VOLTS/'830'
	H = 60 VOLTS
	J = 100 VOLTS
	K = 150 VOLTS
	L = 200 VOLTS

## PACKAGING

### TAPE DIMENSIONS



NOTE: A, B, K, ARE DETERMINED BY COMPONENT SIZE. THE CLEARANCE BETWEEN THE COMPONENT AND THE CAVITY SHALL BE WITHIN .05(.002) MIN. TO .65(.026) MAX. THE COMPONENT SHALL NOT ROTATE MORE THAN 20° WITHIN THE DETERMINED CAVITY.

## ORDERING INFORMATION

### 30BQ SERIES - TAPE AND REEL

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 1500 PIECES).

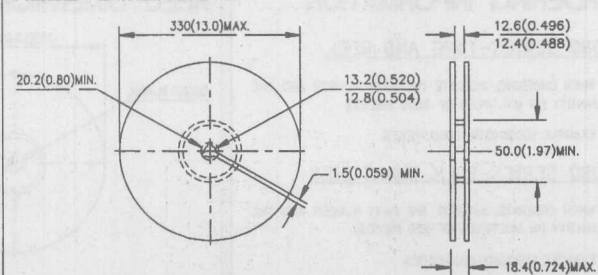
EXAMPLE: 30BQ040TR-6000 PIECES.

### 30BQ SERIES - BULK QUANTITIES

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 200 PIECES).

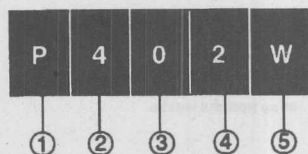
EXAMPLE: 30BQ040-400 PIECES.

## REEL DIMENSIONS



Conforms to EIA-481-Rev. A

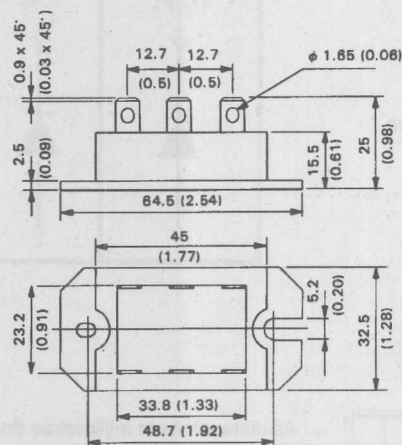
## M1 – Pace-Pak



Part number  
coding

- 1 - Module type
- 2 - Current rating:  
1 = 25A DC (P100 series)  
4 = 40A DC (P400 series)
- 3 - Circuit configuration (0, 2, 3)
- 4 - Voltage code (See Table)
- 5 - W = Optional free-wheeling diode

VRRM	
1 =	400V
2 =	600V
3 =	800V
4 =	1000V
5 =	1200V



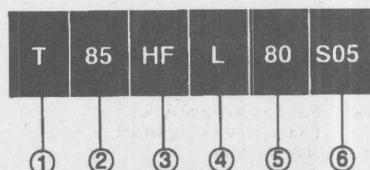
- All dimensions in millimeters (inches)
- Dimensions are nominal
- Full engineering drawings are available on request

### Circuit Type and Coding

Circuit "0"	Circuit "2"	Circuit "3"
Single Phase Hybrid Bridge Common Cathode	Single Phase Hybrid Bridge Doubler connection	Single Phase All SCR Bridge



## M3 – T-Module

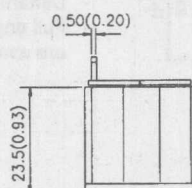
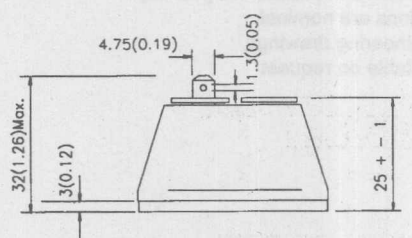
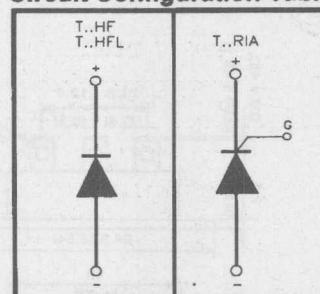


### Part number coding

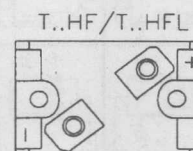
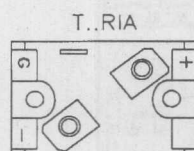
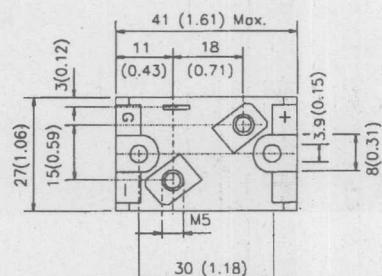
- May contain beryllium oxide ceramic, and under normal circumstances is non hazardous.
- Do not open, cut or grind.
- Unserviceable parts must be disposed of as harmful waste.

- 1 - Module type
- 2 - Current ratings : Standard and Fast Recovery diodes
  - 40 = 40A (Avg)
  - 70 = 70A (Avg)
  - 85 = 85A (Avg)
  - 110 = 110A (Avg) (Only Standard Recovery)
 : Thyristors
  - 50 = 50A (Avg)
  - 70 = 70A (Avg)
  - 90 = 90A (Avg)
- 3 - Circuit configuration:
  - HF = for diodes
  - RIA = for thyristors
 (See Circuit Configuration Table).
- 4 - No letter = for standard recovery diodes and thyristors  
L = only for fast diodes
- 5 - Voltage code : Code x 10 = VRRM
- 6 - trr code (only for fast diodes):
  - S02 = 200 ns
  - S05 = 500 ns

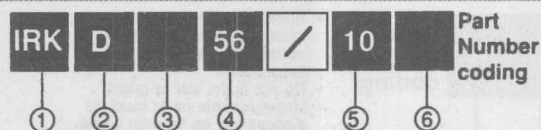
### Circuit Configuration Table



- All dimensions in millimetres (inches)
- Dimensions are nominal
- Full engineering drawings are available on request



## M4 – ADD-A-Pak

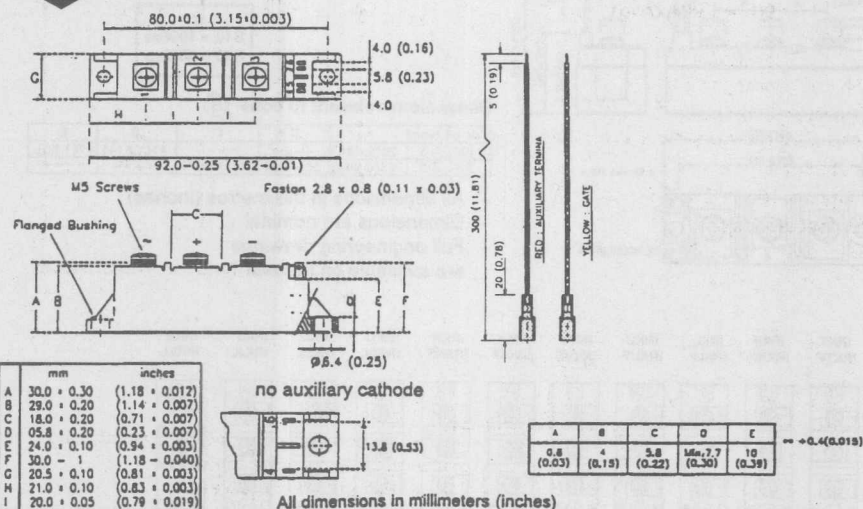


- 1 - Module type
- 2 - Circuit Configuration (See Circuit Configuration Table)
- 4 - Current rating \* : IT(AV) = code value with last digit rounded off "0" or "5"
- 5 - Voltage code : Code x 100 = VRRM

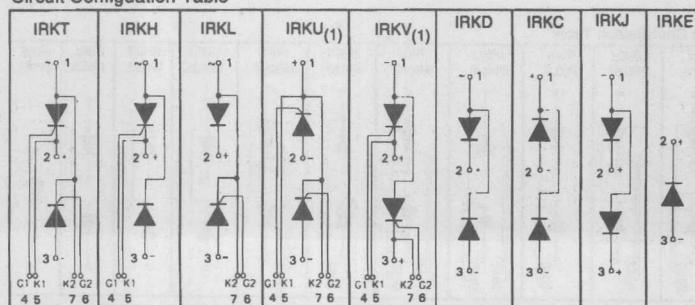
- 6 - No code = Standard recovery (diodes)  
dv/dt = 500V/μs (thyristors)
- Code = trr (fast diodes)  
dv/dt (thyristors)
- S90 = 1000 V/μs (thyristors)

M4A

\*With auxiliary cathode last digit = "1" or "6"  
For no auxiliary cathode last digit = "2" or "7"



Circuit Configuration Table



Note (1). For configuration IRKU, IRKV, IRKK, IRKN contact factory.

## M5 - INT-A-Pak

IRK	T	F	15	2	-	08	H	J	N
①	②	③	④	⑤		⑥	⑦	⑧	⑨

### Part number coding

- Standard parts contain beryllium oxide substrate, and under normal circumstances is non hazardous.
- Do not open, cut or grind.
- Unserviceable parts must be disposed of as harmful waste.

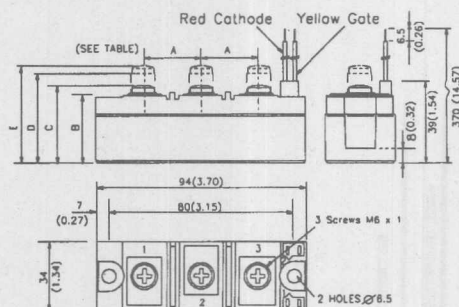
- 1 - Module type
- 2 - Circuit configuration (See Circuit Configuration Table)
- 3 - No letter = standard recovery  
F = Fast SCR  
L = Fast recovery diode
- 4 - Current rating : Code x 10 = IT(AV)
- 5 - 1 & 5 = option with spacers and longer terminal screws  
2 & 6 = option with standard terminal screws
- 6 - Voltage code: Code x 100 = VRRM

- 7 - Fast diode : trr code  
Fast thyristor : dynamic dv/dt code
- 8 - Fast thyristor : tq code
- 9 - No letter = Beryllium Oxide ceramic substrate  
N = Aluminum Nitride substrate

dv/dt  
H = 400V/μs

tq  
N = 10μs  
L = 15μs  
K = 20μs  
J = 25μs

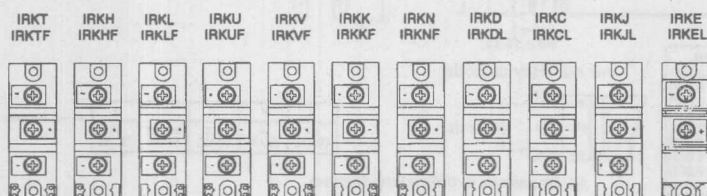
trr  
S10 = 1000ns  
S20 = 2000ns



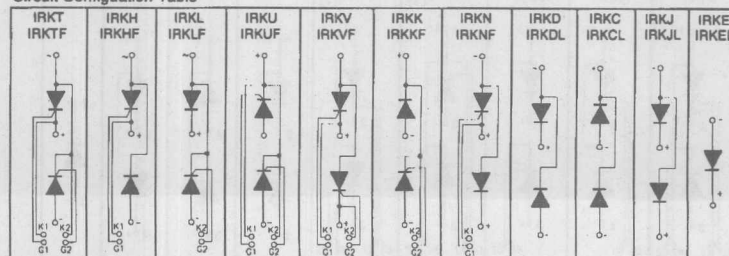
### Dimensions relevant to code ⑤

For all types	A	B	C	D	E
IRK...1.5	25(0.984)	---	---	41(1.614)	47(1.85)
IRK...2.6	23(0.906)	30(1.18)	36(1.417)	---	---

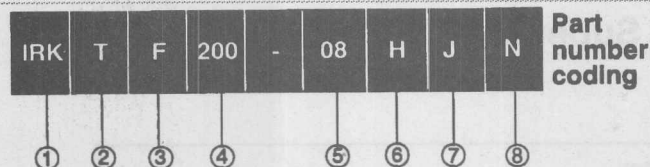
- All dimensions in millimetres (inches)
- Dimensions are nominal
- Full engineering drawings are available on request



Circuit Configuration Table



## M6 – MAGN-A-Pak

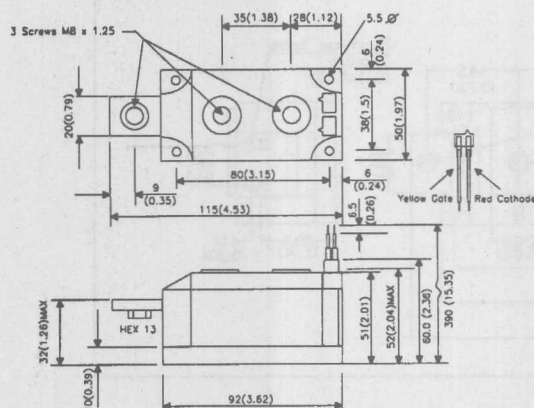


**Part  
number  
coding**

- Standard parts contain beryllium oxide substrate, and under normal circumstances is non hazardous.
- Do not open, cut or grind.
- Unserviceable parts must be disposed of as harmful waste.

- 1 - Module type
- 2 - Circuit configuration (See Circuit Configuration Table)
- 3 - No letter = standard recovery  
F = Fast SCR  
L = Fast recovery diode

- 4 - Current rating : IT (AV)
- 5 - Voltage code : Code x 100 = VRRM
- 6 - Fast diode : trr code  
Fast thyristor : dynamic dv/dt code
- 7 - Fast thyristor : tq code
- 8 - No letter = Beryllium Oxide ceramic substrate  
N = Aluminum Nitride substrate



dv/dt  
H = 400V/μs

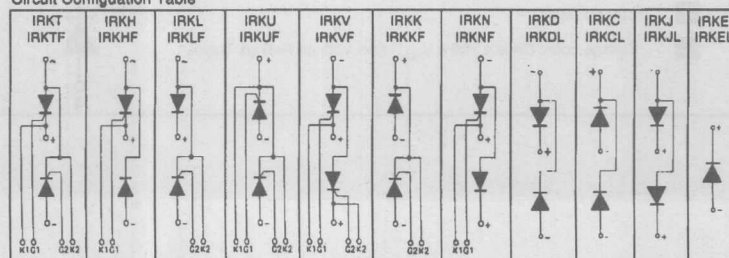
tq  
N = 10μs  
L = 15μs  
K = 20μs  
J = 25μs

trr  
S10 = 1000ns  
S20 = 2000ns

- All dimensions in millimetres (inches)
- Dimensions are nominal
- Full engineering drawings are available on request



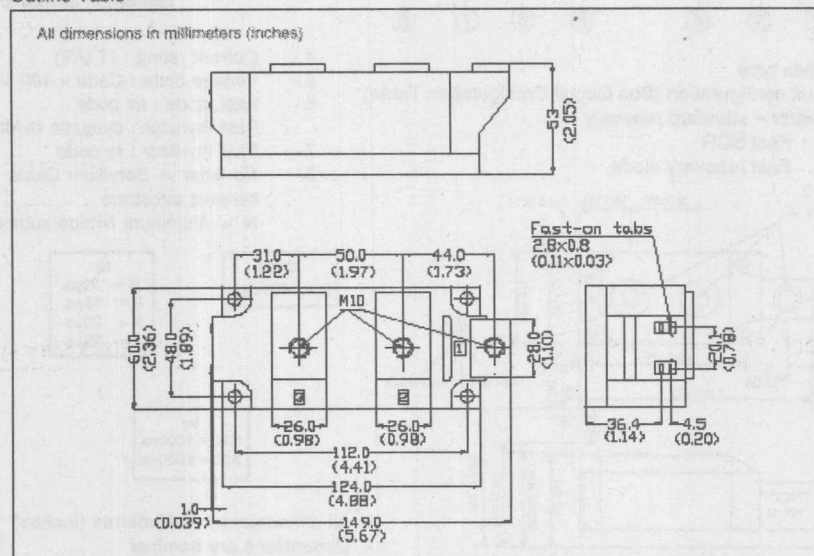
Circuit Configuration Table



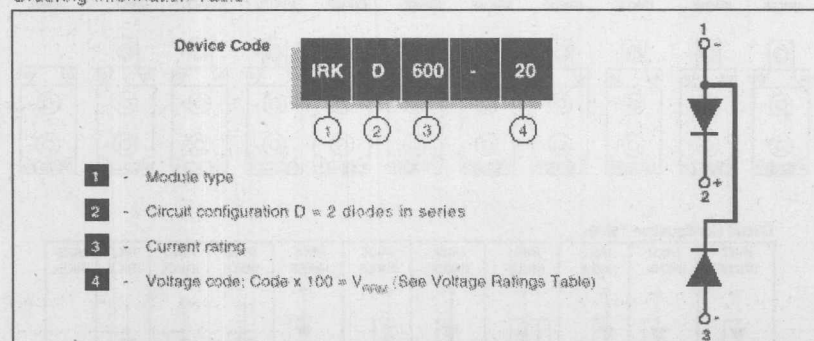


## M7 – Super MAGN-A-Pak

Outline Table

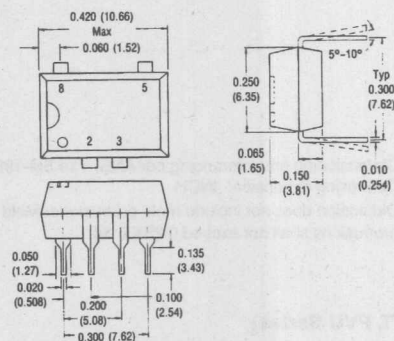


Ordering Information Table



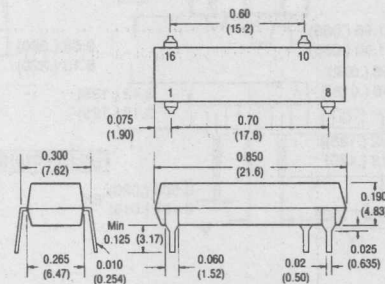
## Microelectronic Relays

### MR1



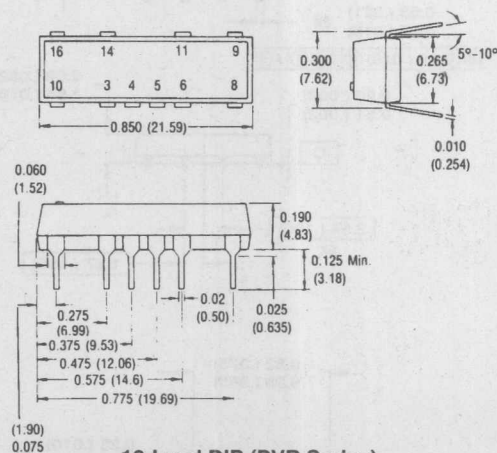
8-Lead DIP (CS, PVA, PVD, PVI Series)

### MR2



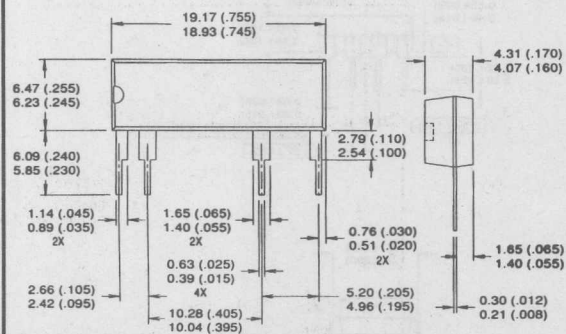
16-Lead DIP (DPA Series)

### MR3



16-Lead DIP (PVR Series)

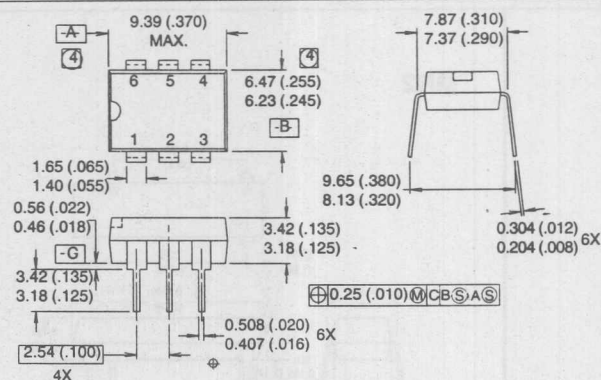
### MR5



8-Lead SIP (SPA Series)

## Microelectronic Relays

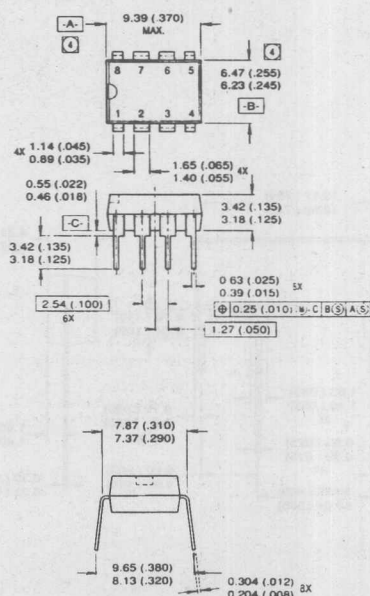
### MR6



1. Dimensioning and tolerancing per ANSI Y14.5M-1982
2. Controlling dimension: INCH
- ④ Dimension does not include mold protrusions. Mold protrusions shall not exceed 0.25 (.010).

### 6-Lead DIP, single-Pole (PVG, PVN, PVT, PVU Series)

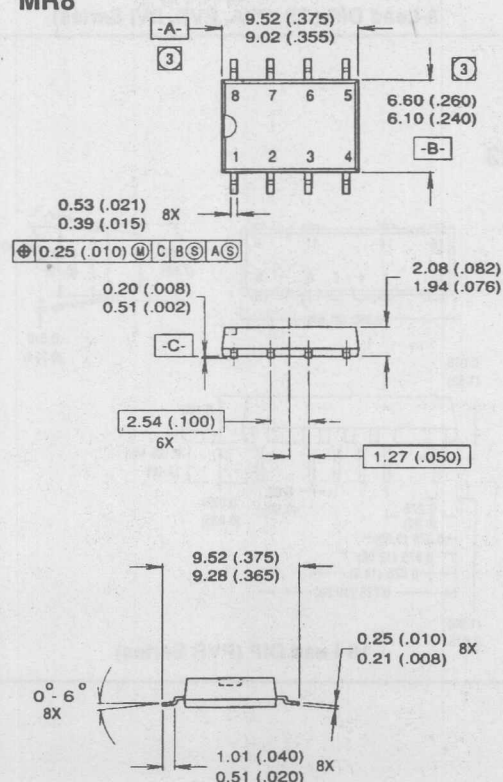
### MR7



1. Dimensioning and tolerancing per ANSI Y14.5M-1982
2. Controlling dimension: INCH
- ④ Dimension does not include mold protrusions. Mold protrusions shall not exceed 0.25 (.010).

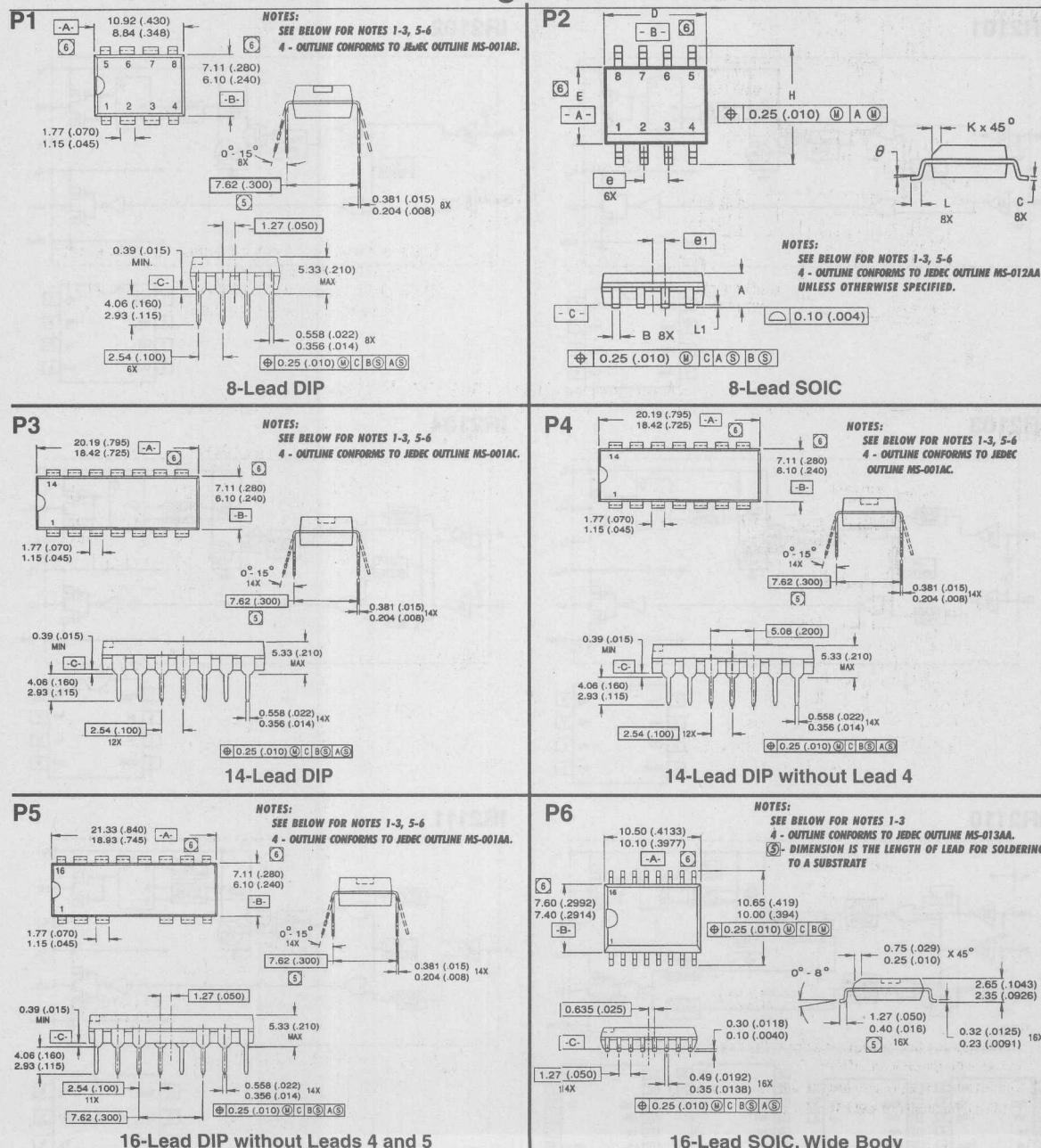
### 8-Lead DIP, Dual-Pole (PVT422)

### MR8



### PVO Series 'Thin-Pak'

## Control Integrated Circuits<sup>7</sup>



**NOTES:**

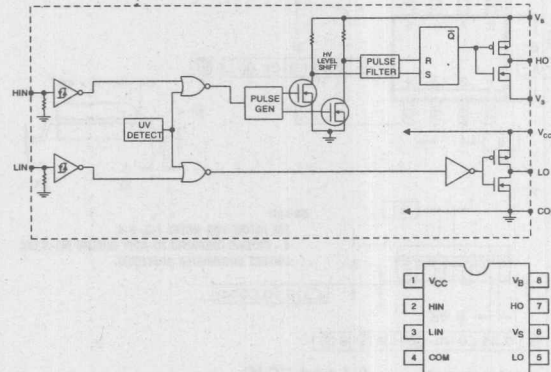
- 1 - DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- 2 - CONTROLLING DIMENSION: INCH.
- 3 - DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).

- ⑤ MEASURED WITH THE LEADS CONSTRAINED TO BE PERPENDICULAR TO DATUM PLANE C.
- ⑥ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS, WHICH SHALL NOT EXCEED 0.25 (0.010).
- 7 - FOR BLOCK DIAGRAMS AND LEAD ASSIGNMENTS, SEE PAGES N-37 THROUGH N-43.

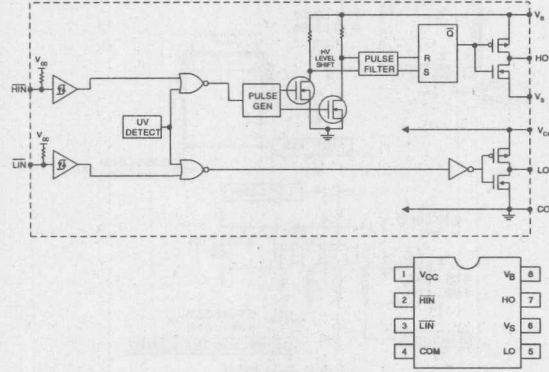


## Control Integrated Circuits

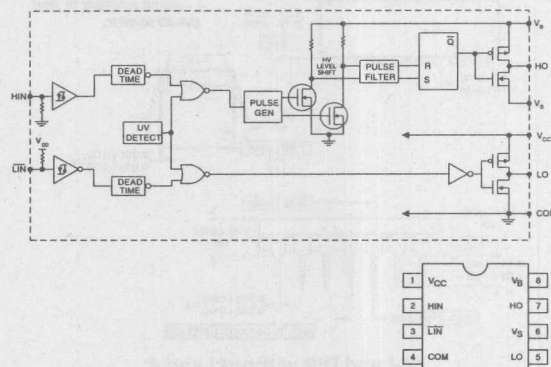
**IR2101**



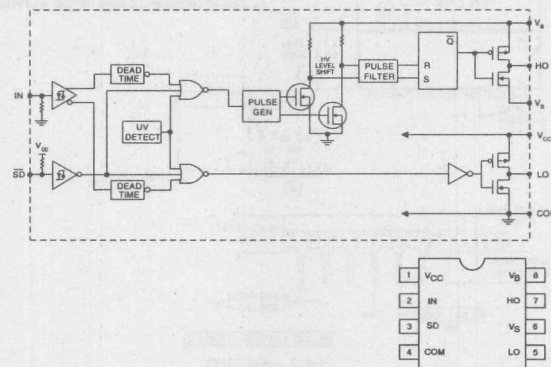
**IR2102**



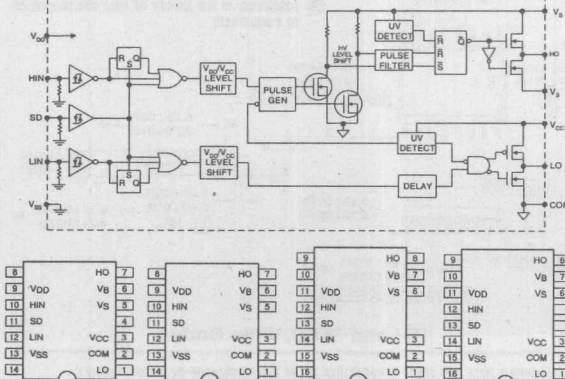
**IR2103**



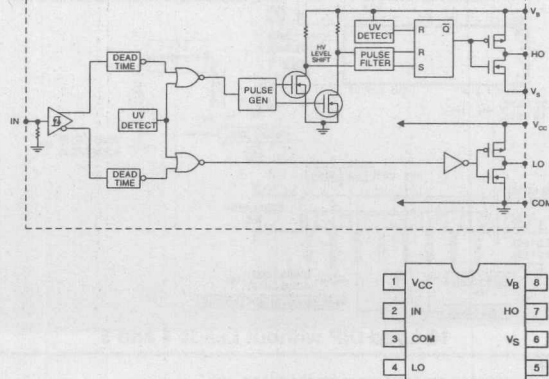
**IR2104**



**IR2110**



**IR2111**



**IR2110**

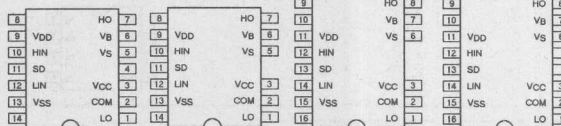
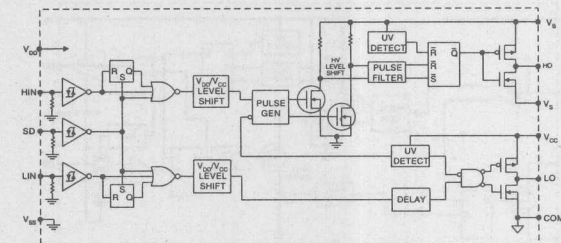
**IR2110-1**

**IR2110-2**

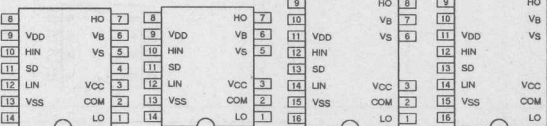
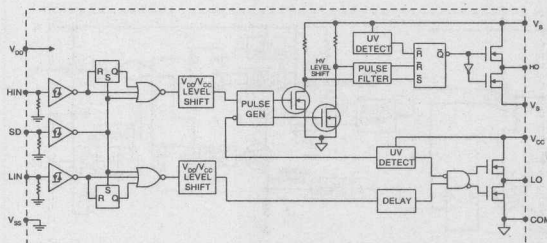
**IR2110S**

## Control Integrated Circuits

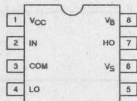
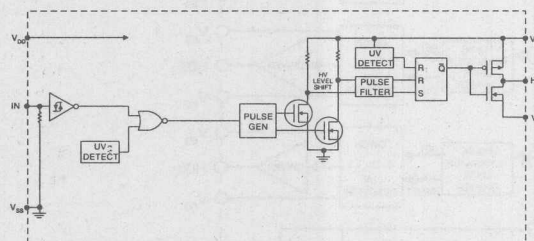
### IR2112



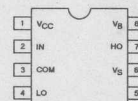
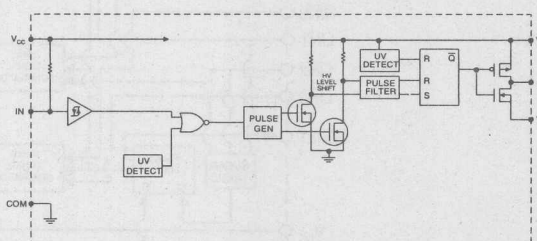
### IR2113



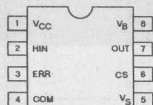
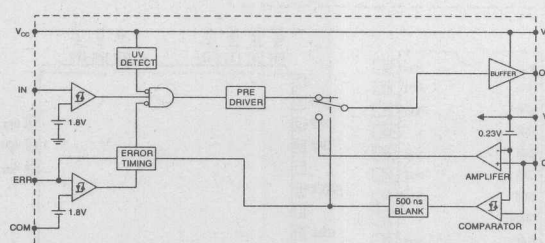
### IR2117



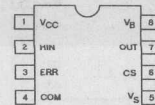
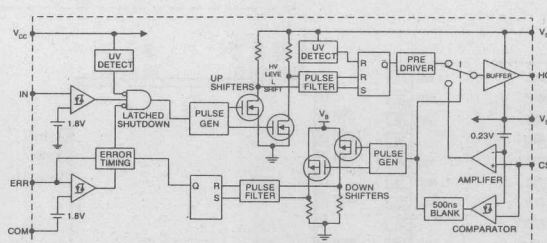
### IR2118



### IR2121

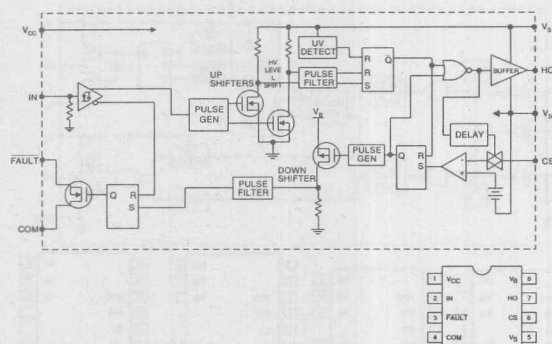


### IR2125

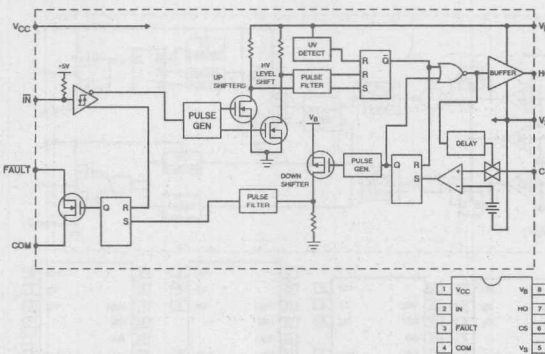


## Control Integrated Circuits

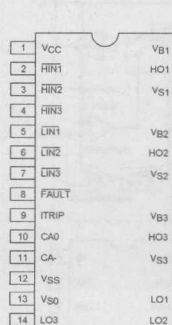
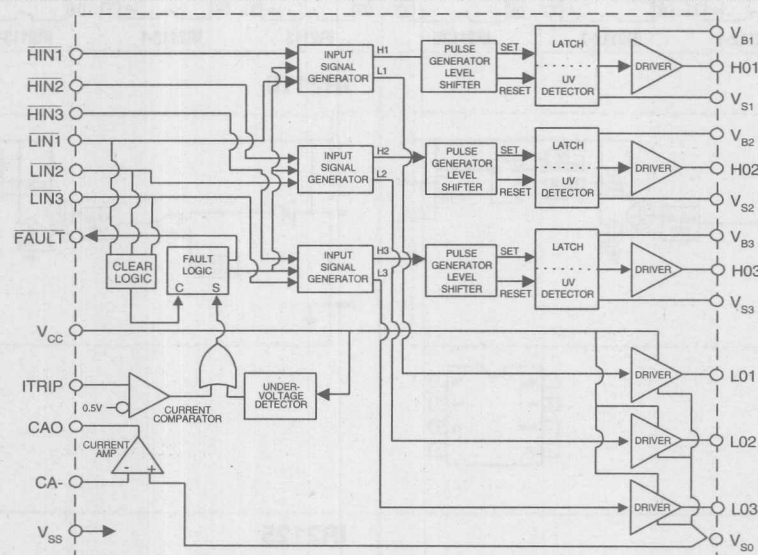
IR2127



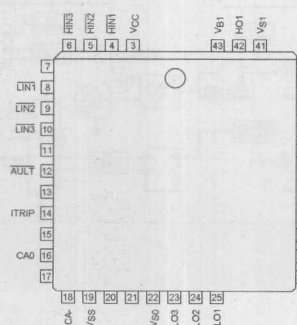
IR2128



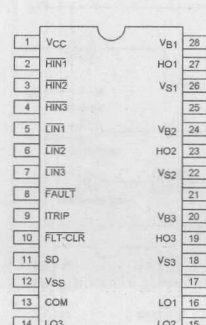
IR2130 / IR2131



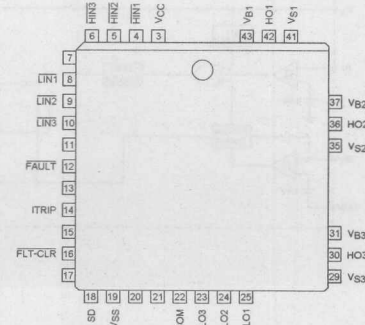
IR2130 / IR2130-J



IR2130S



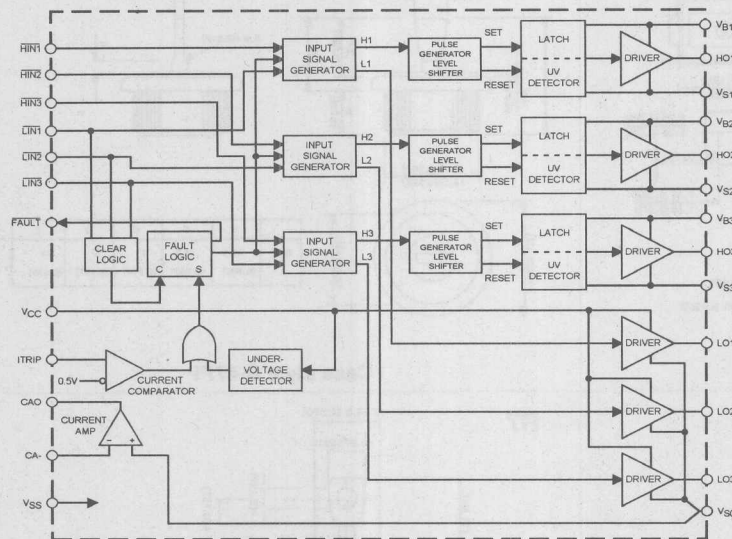
IR2131 / IR2131J



IR2131S

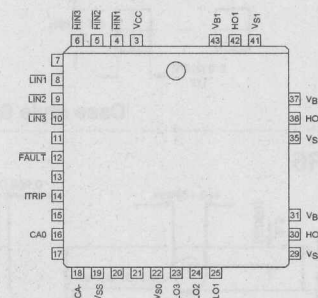
## Control Integrated Circuits

### IR2132



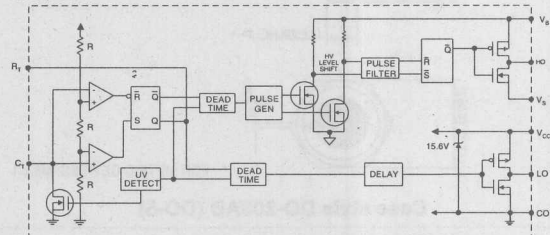
1	VCC	28	VB1
2	HR1	27	HO1
3	HR2	26	VB1
4	HR3	25	VB2
5	LR1	24	HO2
6	LR2	23	VB2
7	LR3	22	VB3
8	FAULT	21	HO3
9	ITRIP	20	VB3
10	CAO	19	HO3
11	CA-	18	VB3
12	VSS	17	LO1
13	VSS	16	LO2
14	LO3	15	LO3

IR2132



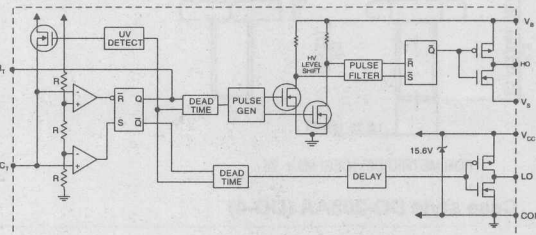
IR2132S

### IR2151



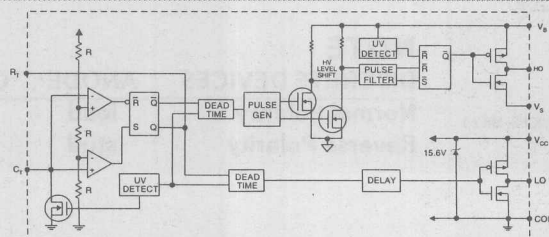
1	VCC	8	VB
2	RT	7	HO
3	CT	6	VS
4	COM	5	LO

### IR2152



1	VCC	8	VB
2	RT	7	HO
3	CT	6	VS
4	COM	5	LO

### IR2155

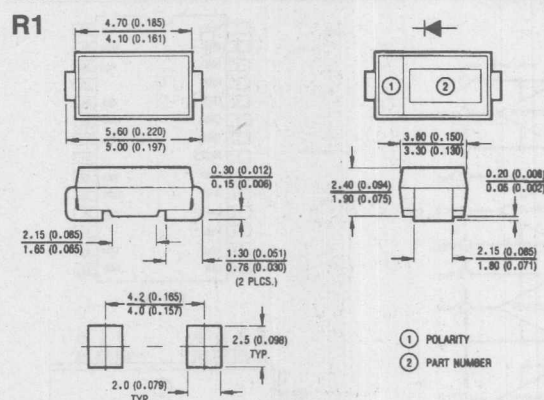


1	VCC	8	VB
2	RT	7	HO
3	CT	6	VS
4	COM	5	LO

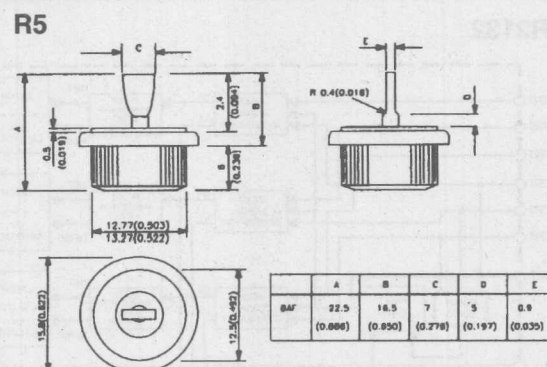


## Diodes

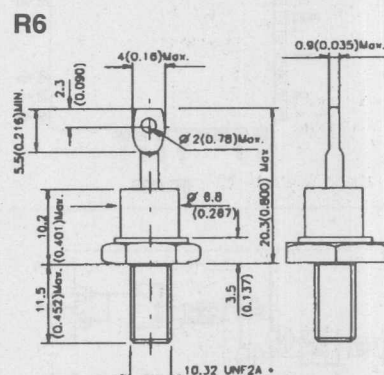
ALL DIMENSIONS IN MILLIMETERS (INCHES)



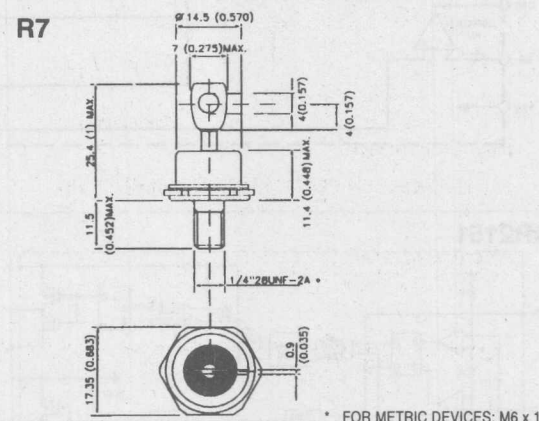
Case style SMB



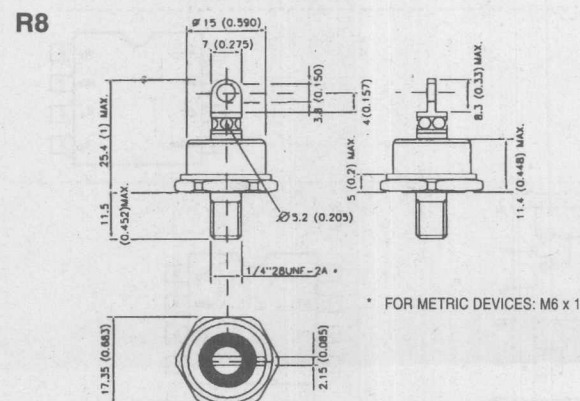
Case style B-47PP



Case style DO-203AA (DO-4)



Case style DO-203AB (DO-5)



Case style DO-203AB (DO-5)

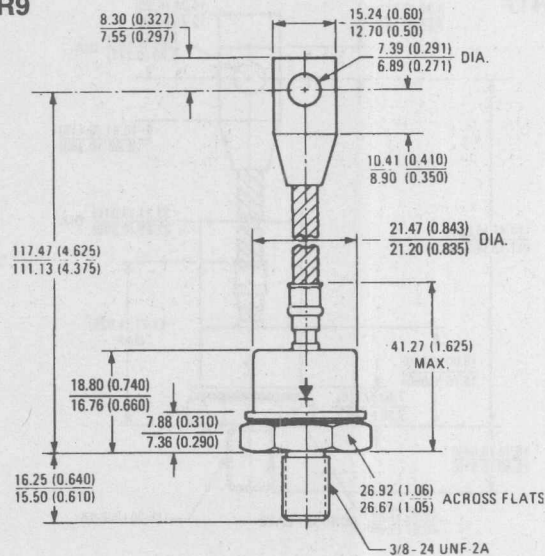
### NOTE

DISCRETE DEVICES	ANODE	CATHODE
Normal Polarity	lead	stud
Reverse Polarity	stud	lead

## Diodes

ALL DIMENSIONS IN MILLIMETERS (INCHES)

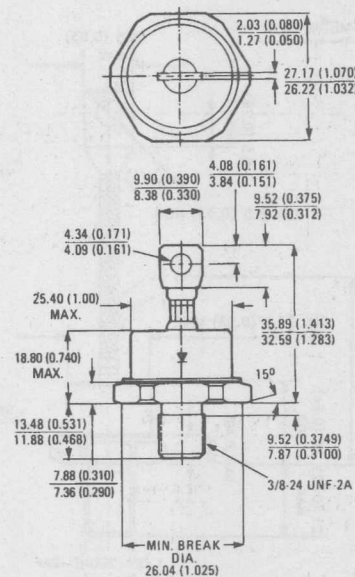
R9



M12 x 1.5 Metric Device

Case style DO-205AA (DO-8) (IR B-15)

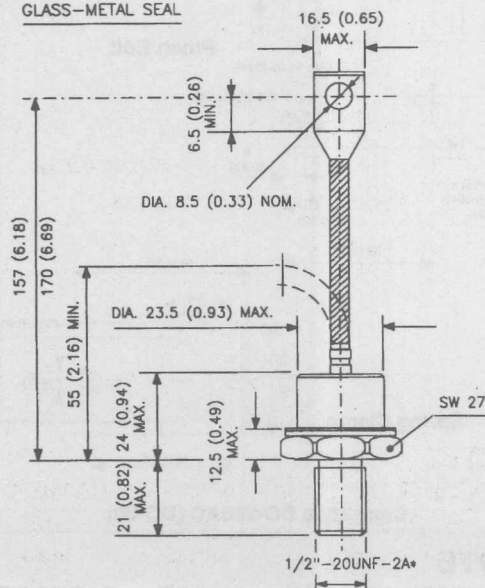
R10



Case style B-42

R11

GLASS-METAL SEAL

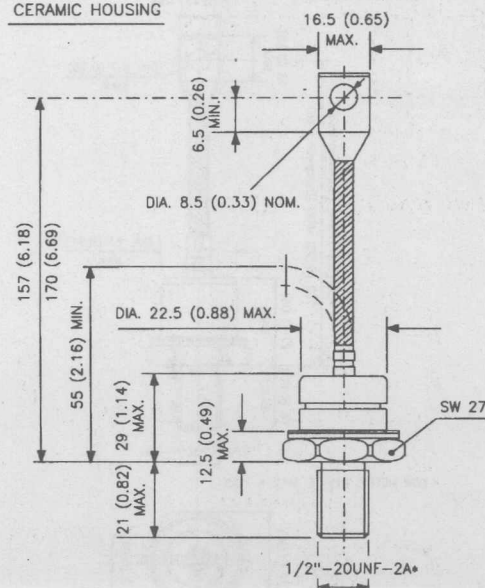


• FOR METRIC DEVICE: M12 X 1.75

Case style DO-205AC (DO-30)

R12

CERAMIC HOUSING



• FOR METRIC DEVICE: M12 X 1.75

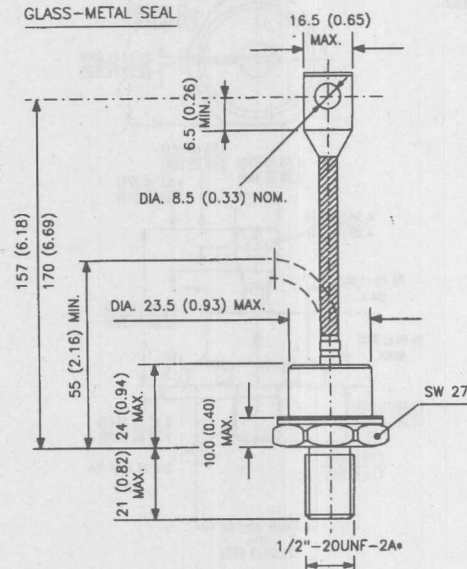
Case style DO-205AC (DO-30)

## Diodes

ALL DIMENSIONS IN MILLIMETERS (INCHES)

**R16**

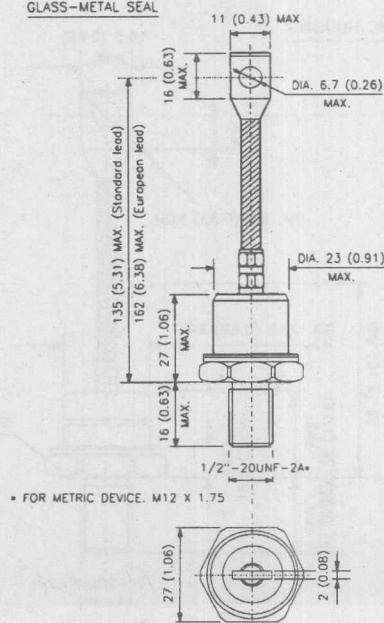
GLASS-METAL SEAL



Case style DO-205AC (DO-30)

**R18**

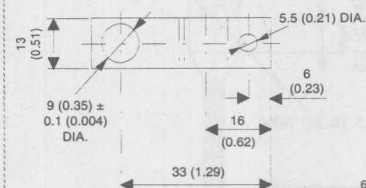
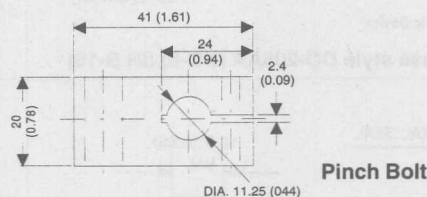
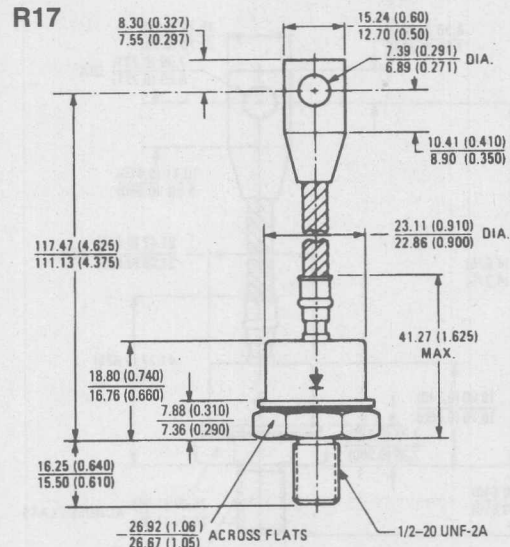
GLASS-METAL SEAL



\* FOR METRIC DEVICE. M12 X 1.75

Case style similar to DO-205AC (DO-8)

**R17**



Case style DO-205AC (DO-30)

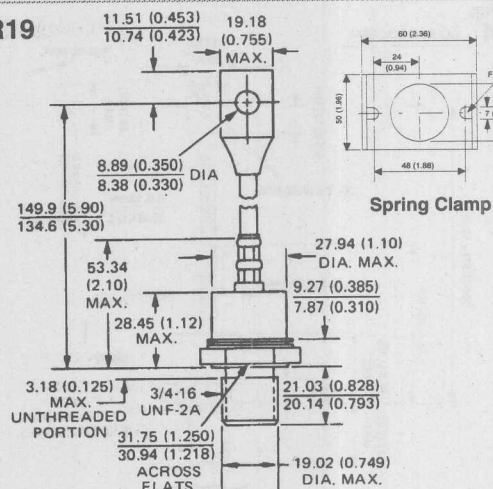
### NOTE

DISCRETE DEVICES	ANODE	CATHODE
Normal Polarity	lead	stud
Reverse Polarity	stud	lead

## Diodes

ALL DIMENSIONS IN MILLIMETERS (INCHES)

**R19**

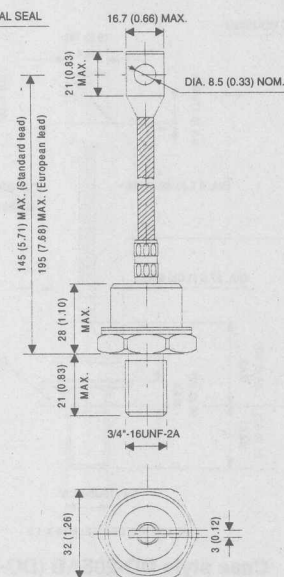


M16 x 1.5 METRIC DEVICE FOR 300U..AM  
M20 x 1.5 METRIC DEVICE FOR 300U..AMA

Case style DO-205AB (DO-9, IR B-13)

**R20**

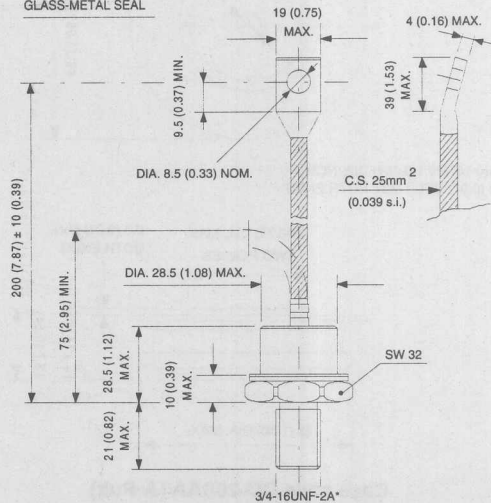
GLASS-METAL SEAL



Case style DO-205AB (DO-9)

**R21**

GLASS-METAL SEAL

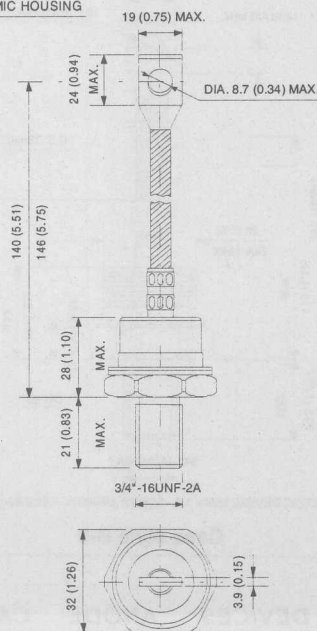


\* FOR METRIC DEVICE: M16 X 1.5

Case style similar to DO-205AB (DO-8)

**R22**

CERAMIC HOUSING



Case style DO-205AB (DO-8)

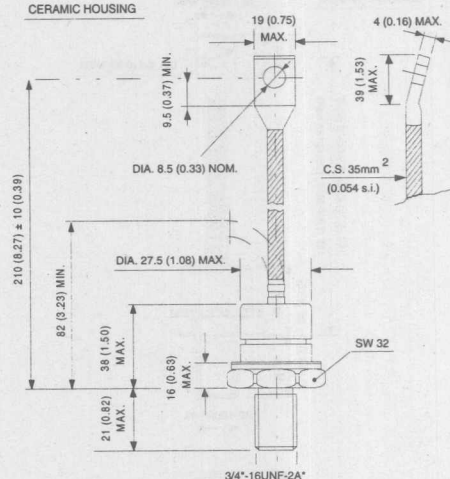


# Diodes

ALL DIMENSIONS IN MILLIMETERS (INCHES)

**R23**

CERAMIC HOUSING

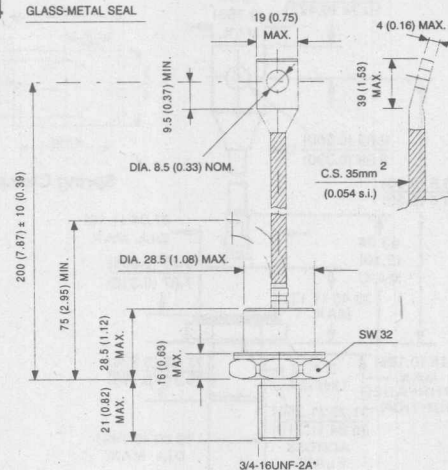


\* FOR METRIC DEVICE: M16 X 1.5

Case style DO-205AB (DO-9)

**R24**

GLASS-METAL SEAL

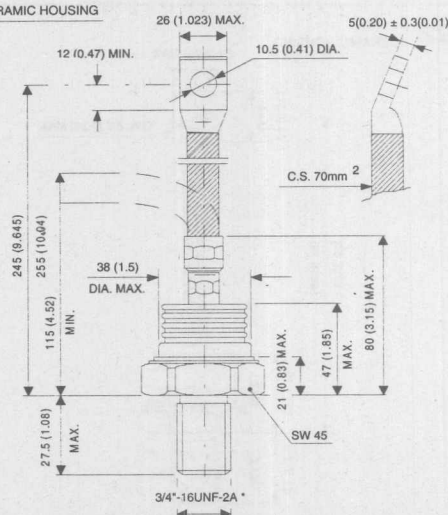


\* FOR METRIC DEVICE: M16 X 1.5

Case style DO-205AB (DO-9)

**R25**

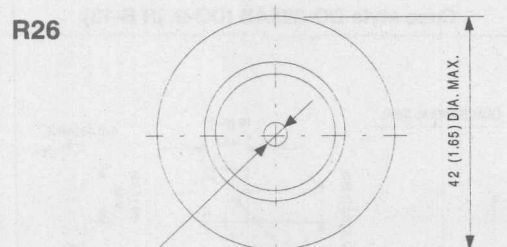
CERAMIC HOUSING



\* FOR METRIC DEVICE: M24 x 1.5 - SCREW LENGTH — 21 (0.83) MAX.

Case style B-8

**R26**



Case style DO-200AA (A-Puk)

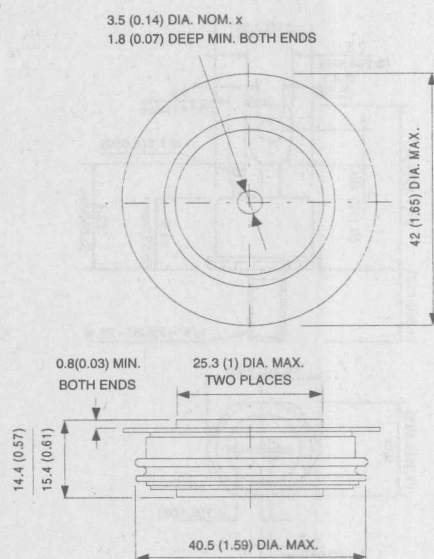
## NOTES

DISCRETE DEVICES	ANODE	CATHODE
Normal Polarity	lead	stud
Reverse Polarity	stud	lead

DISCRETE DEVICES	FLANGE
Normal Polarity	anode
Reverse Polarity	cathode

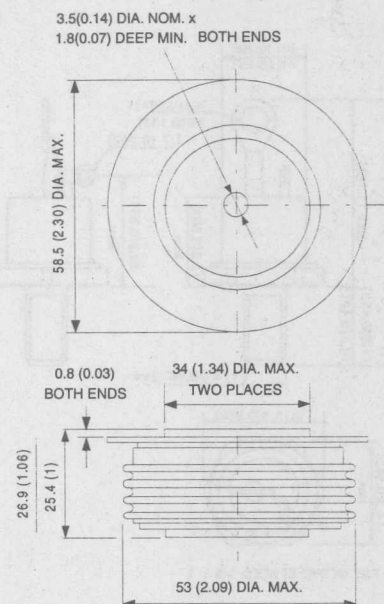
## Diodes

**R27**



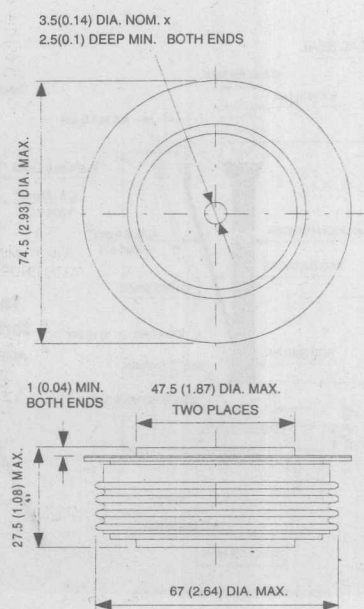
**Case style B-43 (E-Puk)**

**R28**



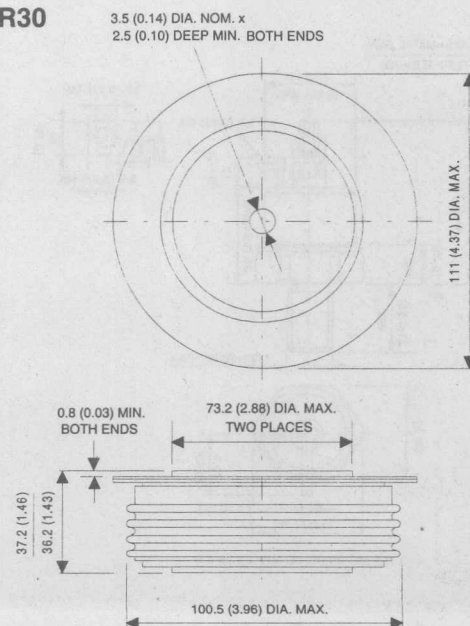
**Case style DO-200AB (B-Puk)**

**R29.**



**Case style DO-200AC (K-Puk)**

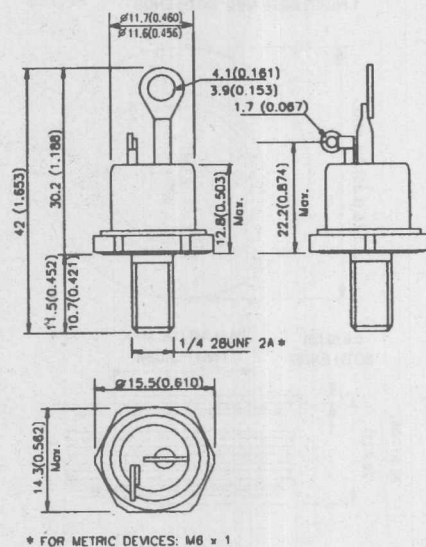
**R30**



**Case style B-44 (R-Puk)**

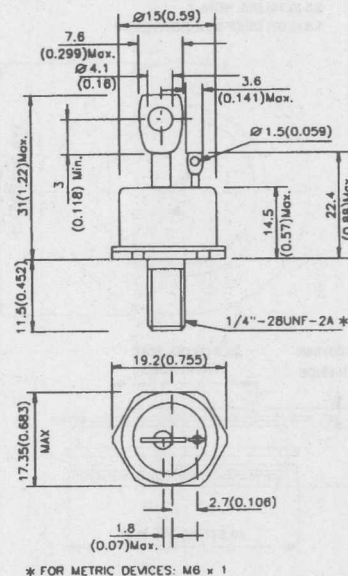
## Thyristors

**T1**



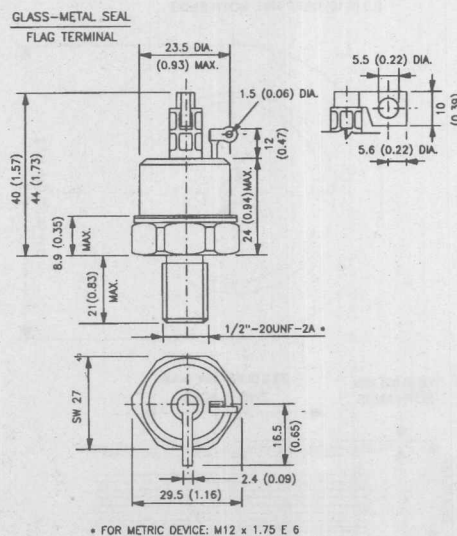
Case style TO-208AA (TO-48)

**T2**



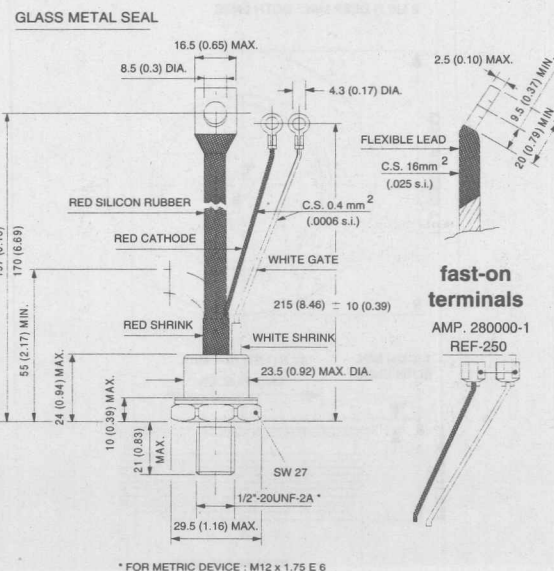
Case style TO-208AC (TO-65)

**T3**



Case style similar to TO-208AD (TO-83)

**T4**

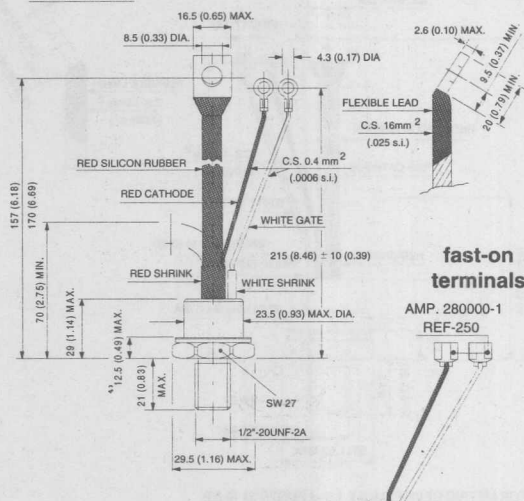


Case style TO-209AC (TO-94)

## Thyristors

T5

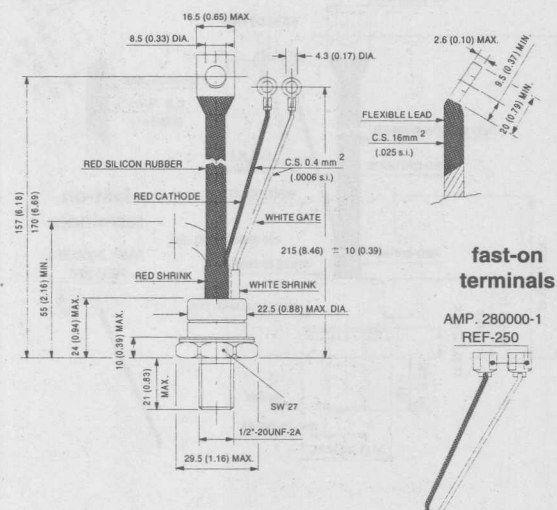
GLASS METAL SEAL



Case style TO-209AC (TO-94)

T6

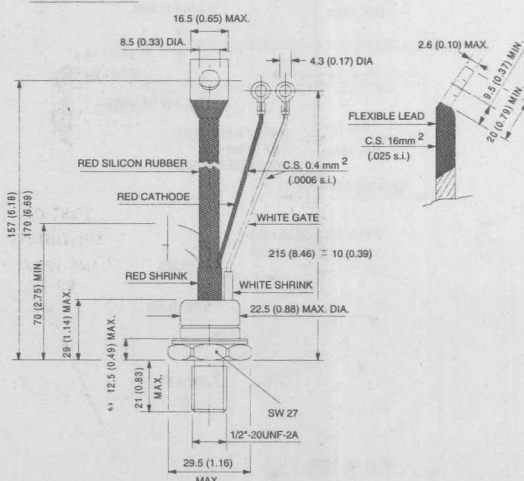
CERAMIC HOUSING



Case style TO-209AC (TO-94)

T7

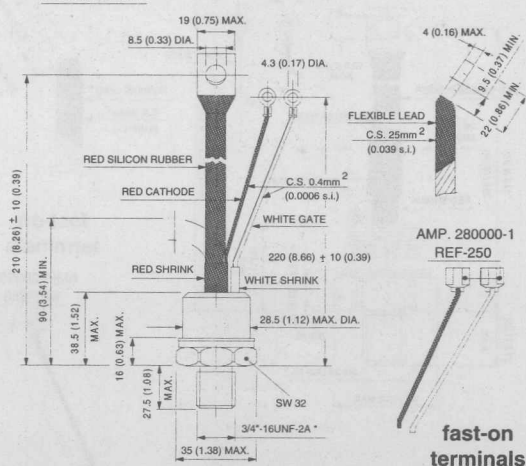
CERAMIC HOUSING



Case style TO-209AC (TO-94)

T8

GLASS METAL SEAL



\* FOR METRIC DEVICE: M16 x 1.5 - LENGTH 21 (0.83) MAX.

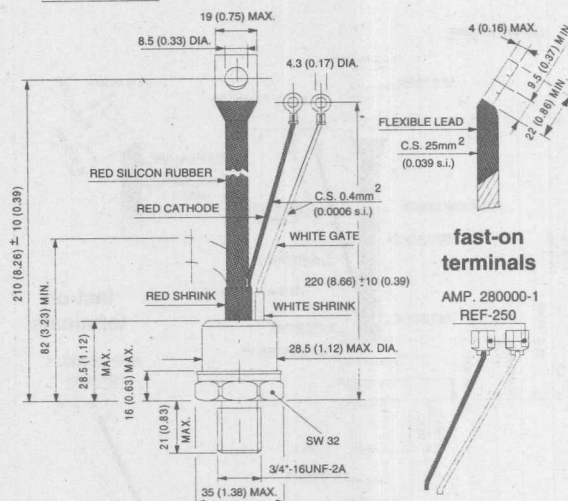
Case style TO-209AB (TO-93)



# Thyristors

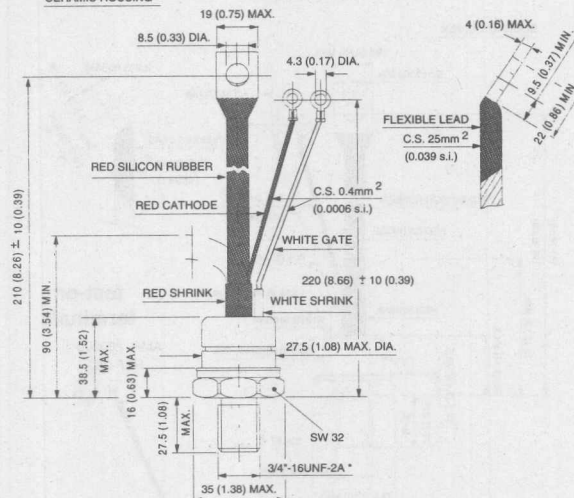
**T9**

GLASS METAL SEAL



**T10**

CERAMIC HOUSING



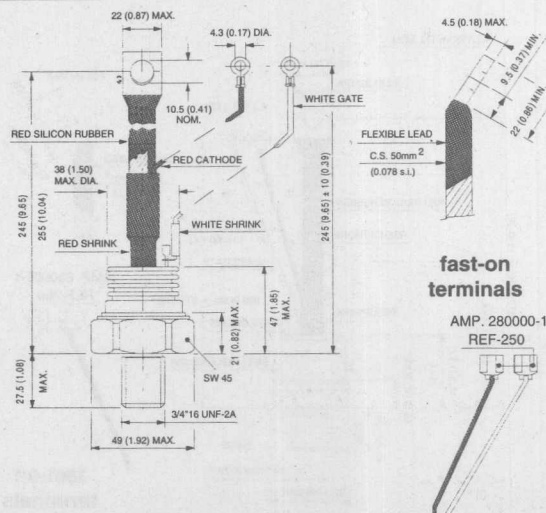
\* FOR METRIC DEVICE: M16 X 1.5 - LENGTH 21 (0.83)

Case style TO-209AB (TO-93)

Case style TO-208AC (TO-65)

**T11**

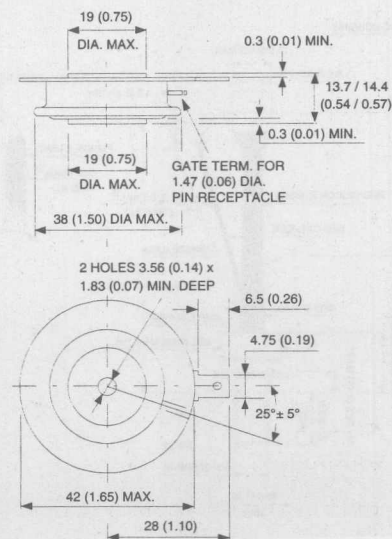
CERAMIC HOUSING



\* FOR METRIC DEVICE: M24 X 1.5 - LENGTH SCREW 21 (0.83) MAX.

**T12**

ANODE TO GATE  
CREEPAGE DISTANCE: 7.62 (0.30) MIN.  
STRIKE DISTANCE: 7.12 (0.28) MIN.



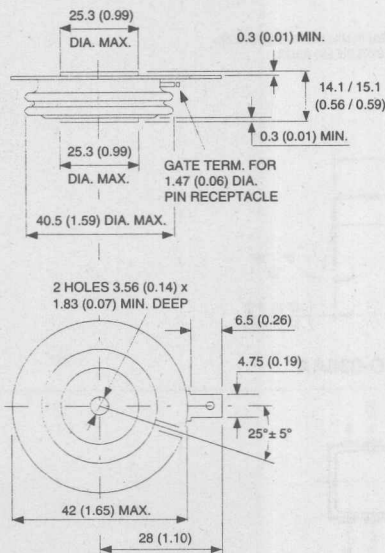
Case style TO-209AE (TO-118)

Case style TO-200AB (A-Puk)

## Thyristors

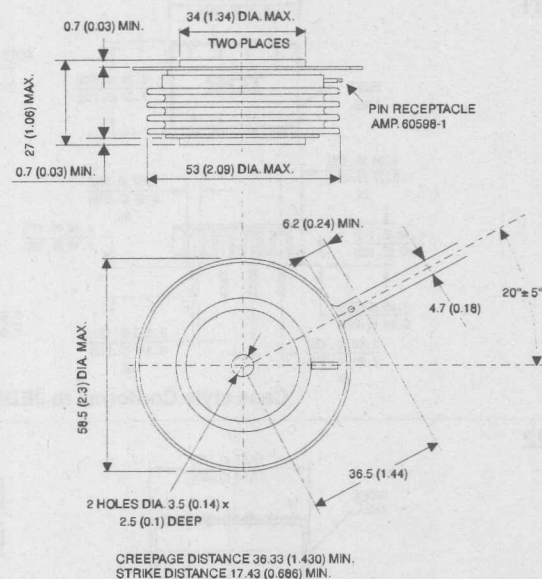
**T13**

ANODE TO GATE  
CREEPAGE DISTANCE: 11.18 (0.44) MIN.  
STRIKE DISTANCE: 7.62 (0.30) MIN.



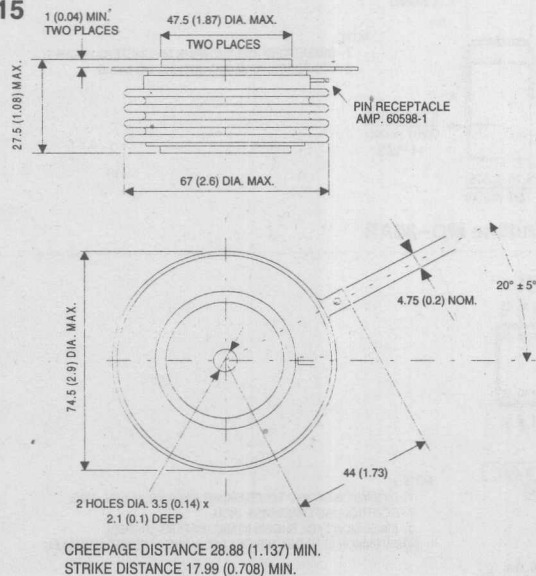
Case style TO-200AB (E-Puk)

**T14**



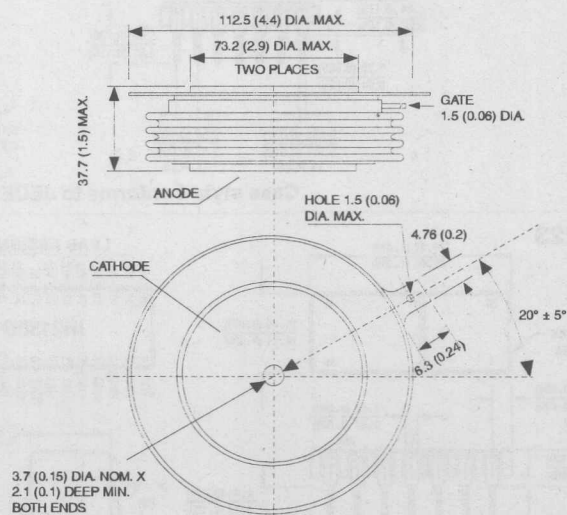
Case style TO-200AC (B-Puk)

**T15**



Case style A-24 (K-Puk)

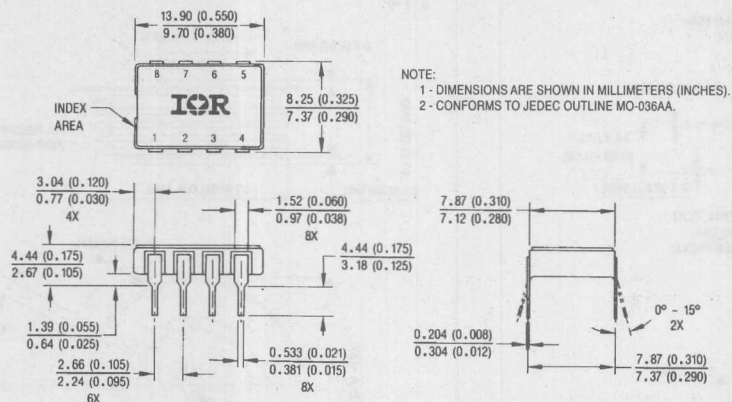
**T16**



Case style A-36 (R-Puk)

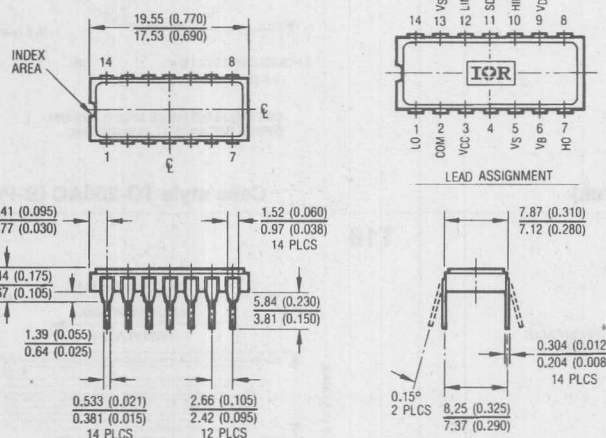
## Government and Space: Control Integrated Circuits

**P21**



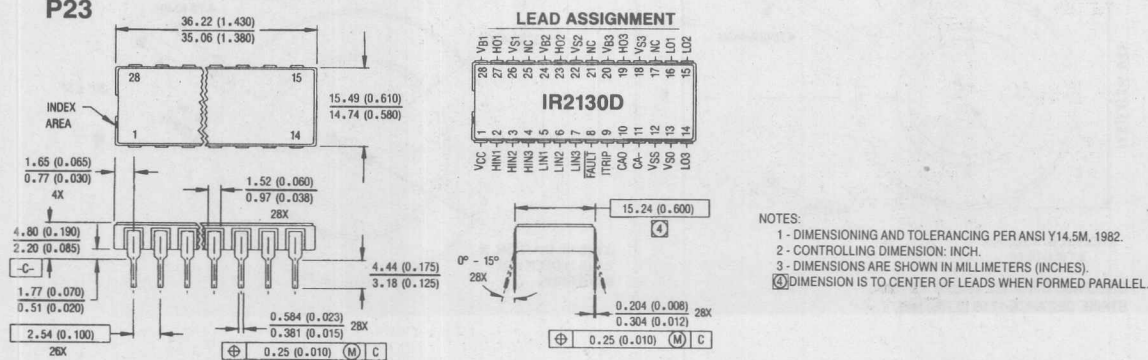
Case style Conforms to JEDEC Outline MO-036AA

**P22**



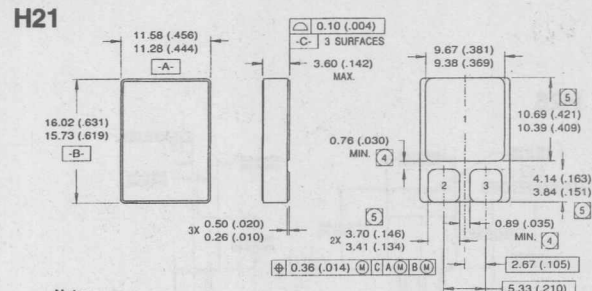
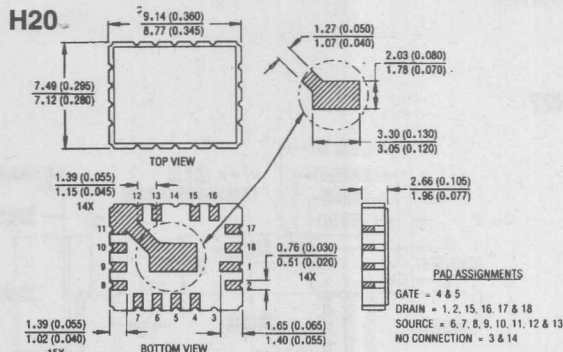
Case style Conforms to JEDEC Outline MO-36AB

**P23**

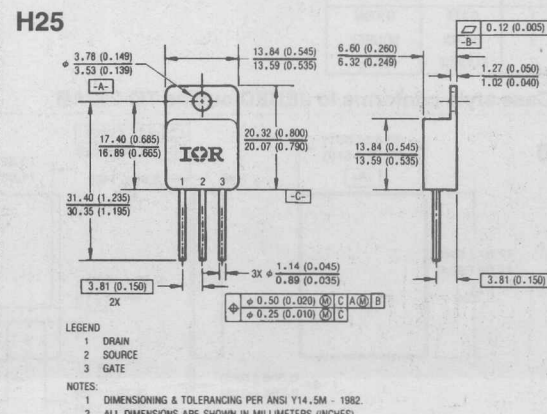
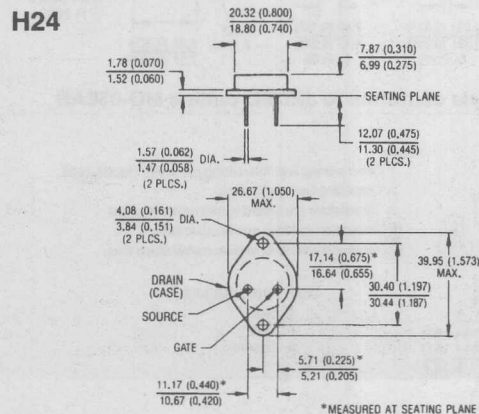
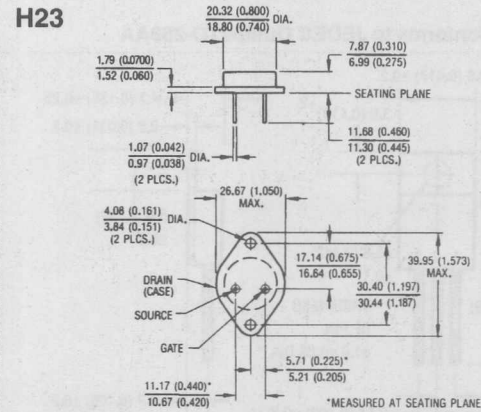
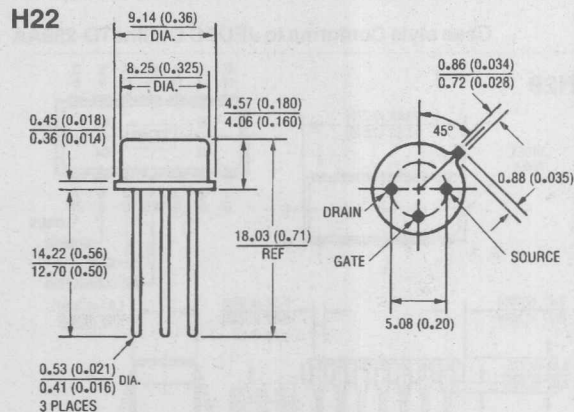


Case style Conforms to JEDEC Outline MO-038AB

# Government and Space: HEXFET® Power MOSFETs



## Case style Leadless Chip Carrier (LCC)

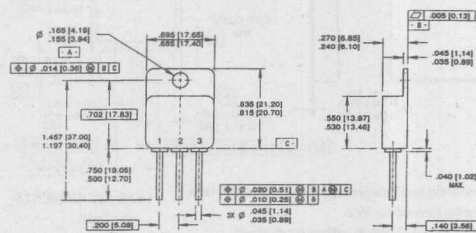


## Case style conforms to JEDEC outline TO-254AA



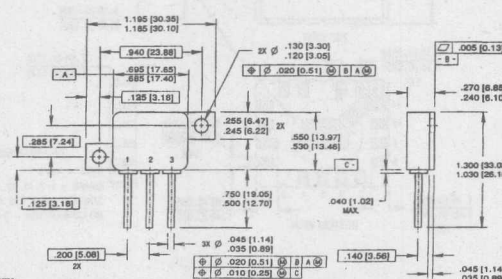
# Government and Space: HEXFET® Power MOSFETs

H26



NOTES:  
1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M-1982.  
2. CONTROLLING DIMENSION: INCHES.  
3. DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS).  
4. OUTLINE CONFORMS TO JEDEC OUTLINE TO-258AA.

H27

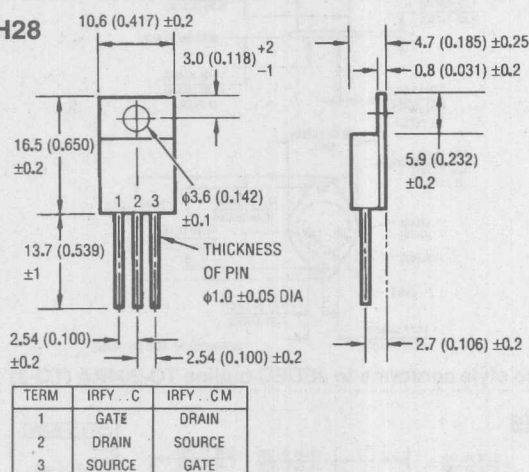


NOTES:  
1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M-1982.  
2. CONTROLLING DIMENSION: INCHES.  
3. DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS).  
4. OUTLINE CONFORMS TO JEDEC OUTLINE TO-258AA.

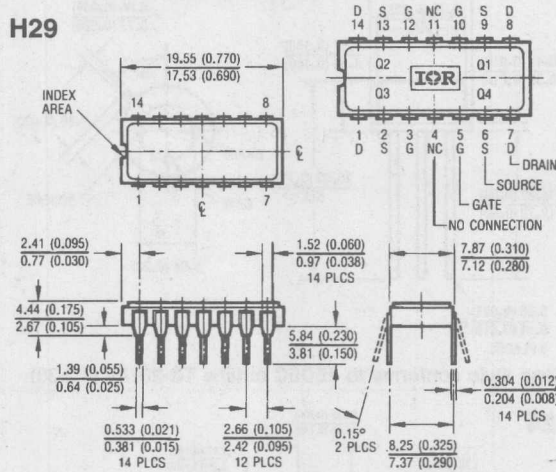
Case style Conforms to JEDEC Outline TO-258AA

Case style Conforms to JEDEC Outline TO-259AA

H28



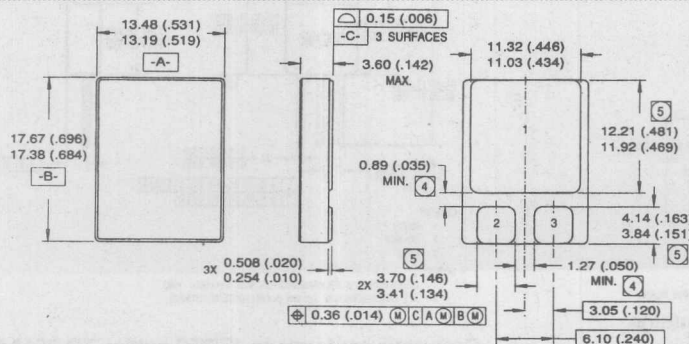
H29



Case style conforms to JEDEC outline TO-257AB

Case style conforms to JEDEC outline MO-036AB

H30



Notes:  
1. Dimensioning and Tolerancing per ANSI Y14.5M-1982  
2. Controlling Dimension: Inch  
3. Dimensions are shown in millimeters (Inches)  
④ Dimension includes metallization flash  
⑤ Dimension does not include metallization flash

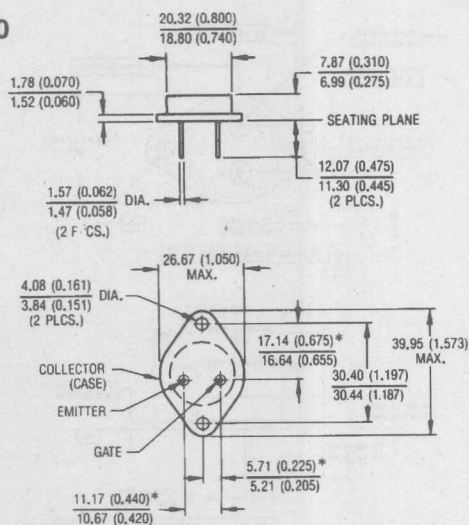
## LEAD ASSIGNMENTS

- 1 - Drain
- 2 - Gate
- 3 - Source

Case style SMD-2

## Government and Space

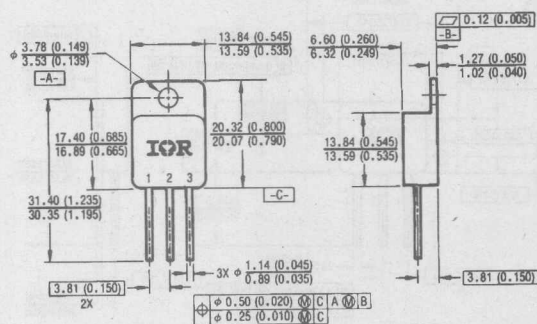
## IG20



\* MEASURED AT SEATING PLANE

**Case style conforms to JEDEC outline  
TO-204AE (Modified TO-3)**

## IG21



## NOTES

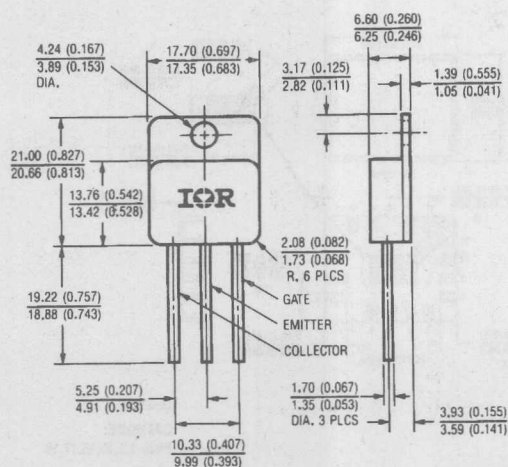
- NOTES:  
1 DIMENSIONING & TOLERANCING PER ANSI Y14.5M - 1982.  
2 ALL DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).

LEGEND

- LEGEND  
1 COLLECTOR  
2 EMITTER  
3 GATE

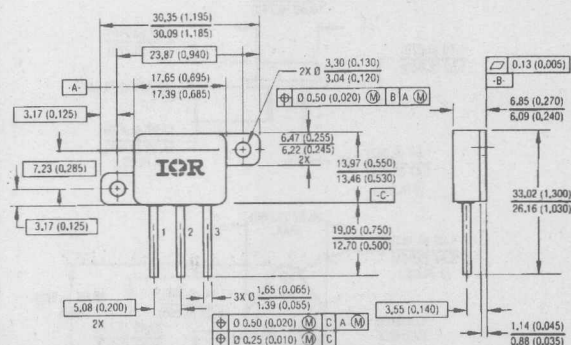
**Case style conforms to JEDEC outline TO-254AA**

## IG22



**Case style conforms to JEDEC outline  
TO-258AA**

## IG23



## NOTES

- NOTES
1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M - 1982.
  2. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).

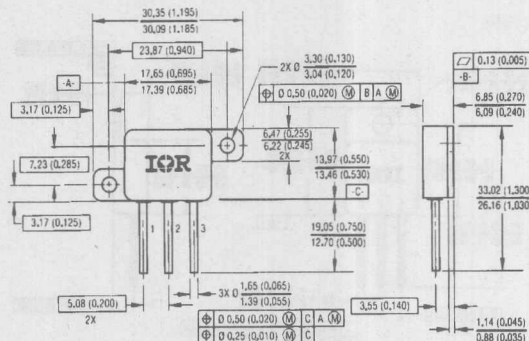
LEGEND

- LEGEND  
1 COLLECTOR  
2 EMITTER  
3 GATE

**Case style conforms to JEDEC outline  
TO-259AA**

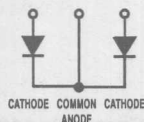
## Government and Space: HEXFRED™ and Schottky Diodes

J36



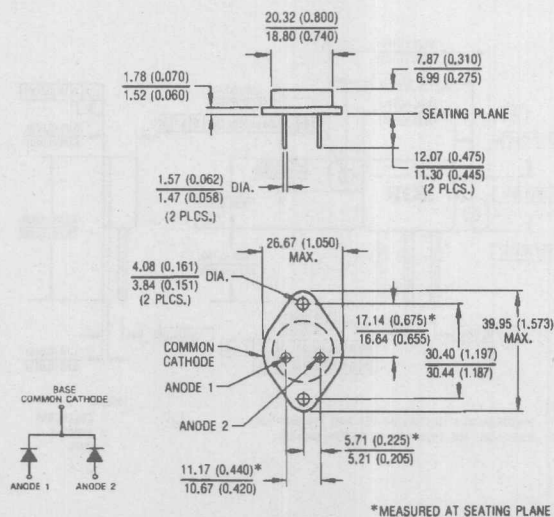
## NOTES

- 1 DIMENSIONING & TOLERANCING PER ANSI Y14.5M - 1982  
2 DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).



**Case style conforms to JEDEC outline TO-259AA**

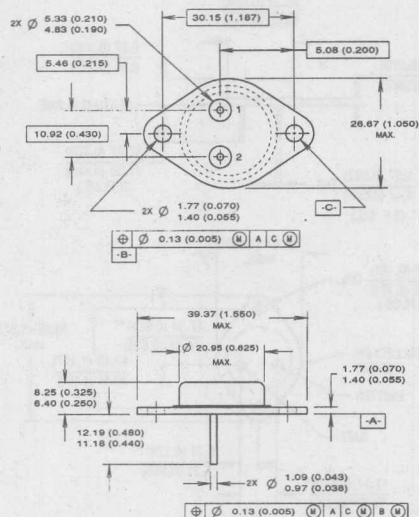
K7



\*MEASURED AT SEATING PLANE

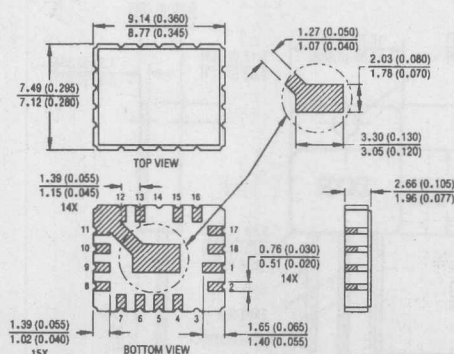
**Case style conforms to JEDEC outline TO-204AE  
(modified TO-3)**

## K6



**Case style TO-204AA (TO-3)**

## K30



### LEGEND

**CATHODE:**  
PINS 1,2,15,16,17,18

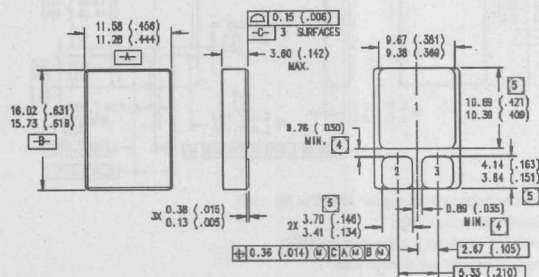
**ANODE:**  
PINS 6,7,8,9,10,11,12,13

**NO CONNECTION:**  
PINS 3,4,5,14

**Case style Leadless Chip Carrier (LCC)**

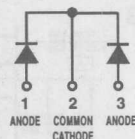
# Government and Space: HEXFRED™ and Schottky Diodes

K31



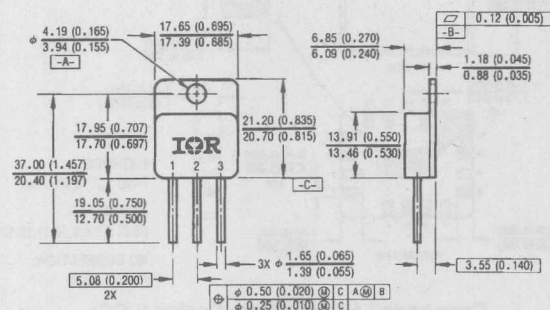
NOTES:

1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling dimension: INCH.
3. Dimensions are shown in millimeters (INCHES)
4. Dimension includes metallization flash
5. Dimension does not include metallization flash



Case style SMD-1

K32



NOTES:

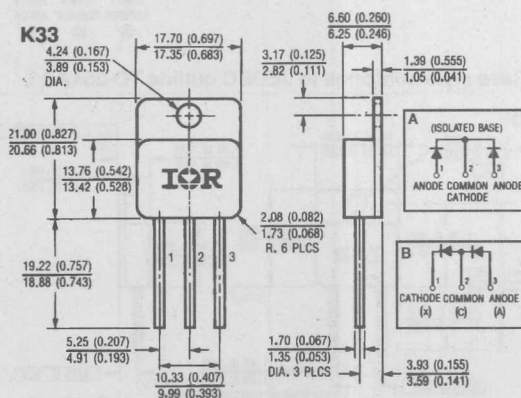
1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M - 1982.
2. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).

LEGEND

- 1 - ANHODE
- 2 - COMMON CATHODE
- 3 - ANODE

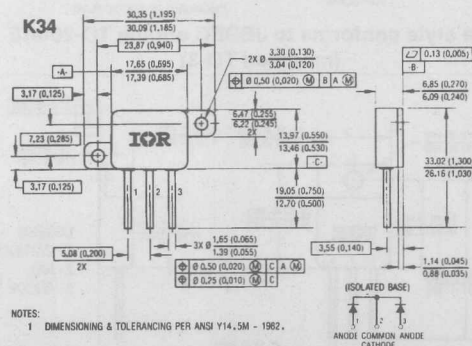
Case style conforms to JEDEC outline TO-254AA

K33



Case style conforms to JEDEC outline TO-258AA

K34



NOTES:

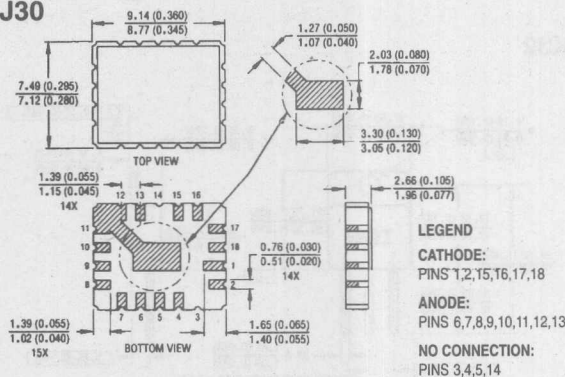
1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M - 1982.

Case style conforms to JEDEC outline TO-259AA



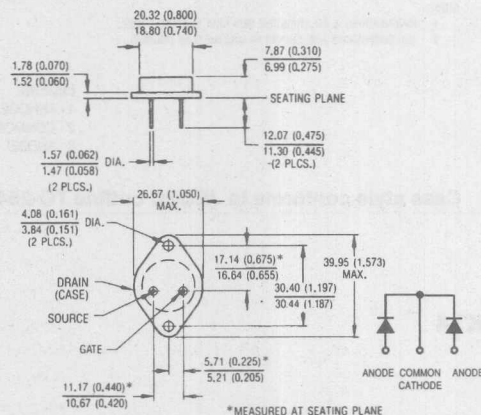
# Government and Space: HEXFRED™ and Schottky Diodes

**J30**



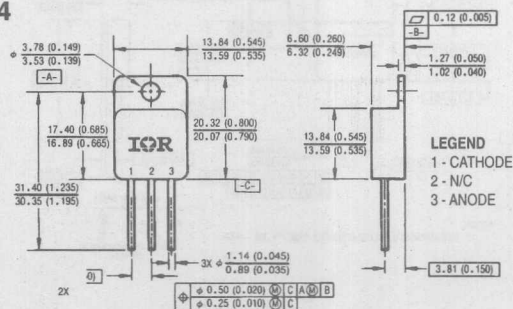
Case style Leadless Chip Carrier (LCC)

**J32**



Case style conforms to JEDEC outline TO-204AE (modified TO-3)

**J34**

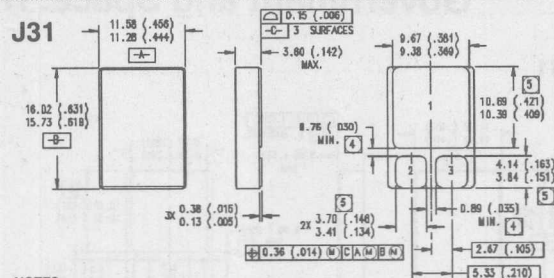


**NOTES:**

1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling dimension: INCH

Case style conforms to JEDEC outline TO-254AA

**J31**

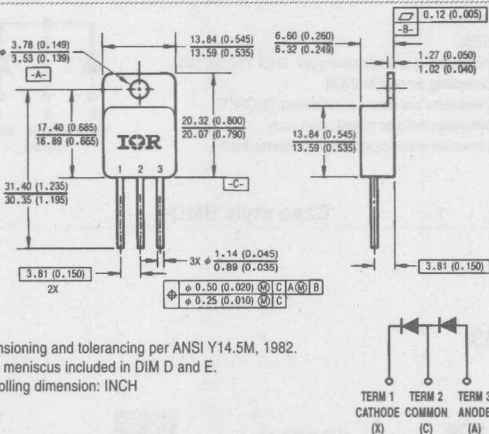


**NOTES:**

1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Controlling dimension: INCH.
3. Dimensions are shown in millimeters (INCHES)
4. Dimension includes metallization flash
5. Dimension does not include metallization flash

Case style SMD-1

**J33**

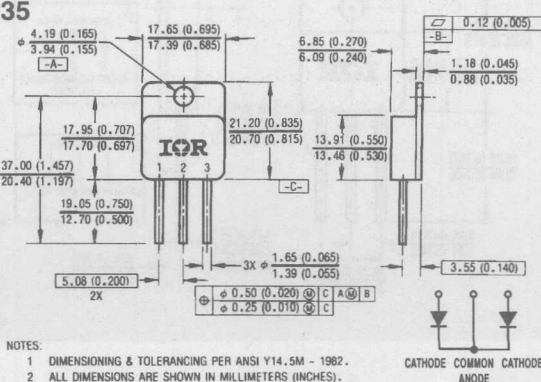


**NOTES:**

1. Dimensioning and tolerancing per ANSI Y14.5M, 1982.
2. Glass meniscus included in DIM D and E.
3. Controlling dimension: INCH

Case style conforms to JEDEC outline TO-254AA

**J35**



**NOTES:**

1. DIMENSIONING & TOLERANCING PER ANSI Y14.5M - 1982.
2. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).

Case style conforms to JEDEC outline TO-258AA

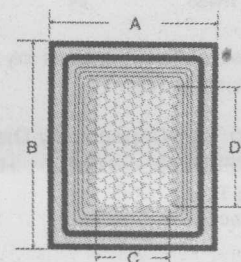
# HEXFRED Die

Wafer(1) Part Number	Die(2) Part Number	Die Size	Length/Side (in.) mm	"C x D" (in.) mm	Anode Metallization	Tray Quantity	Packaged Equivalent
HF06A060ACB	N/A	6	(0.066x0.066) 1.68x1.68	(0.037x0.037) 0.94x0.94	Aluminum	N/A	HFA04TB60 HFA08TA60C
HF10A060ACB	HF10A060ACD	10	(0.090X0.090) 2.29x2.29	(0.062x0.062) 1.58x1.58	Aluminum	196	HFA08PB60 HFA08TB60 HFA16PA60C HFA16TA60C
HF20A060ACB	HF20A060ACD	20	(0.107x0.130) 2.72x3.30	(0.056x0.080) 1.42x2.03	Aluminum	100	n/a
HF30A060ACB	HF30A060ACD	30	(0.115x0.155) 2.92x3.94	(0.064x0.104) 1.63x2.64	Aluminum	100	HFA15PB60 HFA15TB60 HFA30PA60C HFA30TA60C
HF40A060ACB	HF40A060ACD	40	(0.169x0.220) 4.29x5.59	(0.117x0.169) 2.97x4.29	Aluminum	35	HFA25PB60 HFA25TB60 HFA50PA60C
HF20C120ACB	HF20C120ACD	20	(0.107x0.130) 2.72x3.30	(0.056x0.080) 1.42x2.03	Aluminum	100	HFA06PB120 HFA06TB120 HFA12PA120C HFA12TA120C
HF30C120ACB	HF30C120ACD	30	(0.115x0.155) 2.92x3.94	(0.064x0.104) 1.63x2.64	Aluminum	100	HFA08PB120 HFA08TB120 HFA16PA120C HFA16TA120C
HF40C120ACD	40(0.169x0.220) 4.29x5.59			(0.117x0.169) 2.97x4.29	Aluminum	35	HF40C120ACB HFA16PB120 HFA16TB120 HFA32PA120C
HF50C120ACB	HF50C120ACD	50	N/A	N/A	Aluminum	N/A	HFA30PB120

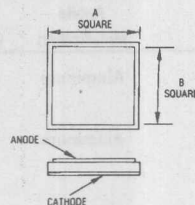
(1) Die in probed un-cut, wafer form

(2) Die in probed waffle pack form

HF	10	A	60	A	CB
HEXFRED	Die Size	A=Electron Irradiated B=Platinum Diffused C=Electron Irradiated D=Platinum Diffused	Voltage (x10)	A=Aluminum	CB=Probed Unsaun Wafer CD=Chip Packed



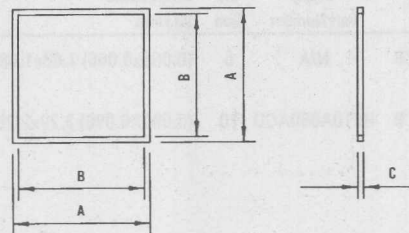
## SCR and Diode Die



Diode Die  
Junction Carrier Quantities

Basic Part No.	Quantity Per Carrier
SC090	196
SC125	100
SC150	49
SC175	49
SC200	36
SC275	25

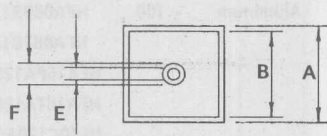
Please note that junctions are only sold in multiples of the carriers shown above.



All dimensions (inches) millimeters

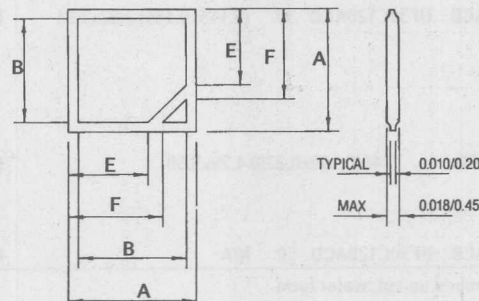
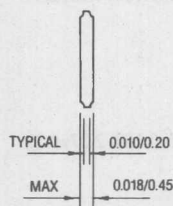
Die Part No.	A	B	C
			Maximum
IR180DM	(0.178) 4.52	(0.123) 3.12	(0.014) 0.36
IR230DM	(0.228) 5.79	(0.173) 4.39	(0.014) 0.36
IR350DM	(0.354) 8.99	(0.299) 7.59	(0.014) 0.36
IR480DM	(0.478) 12.14	(0.423) 10.74	(0.014) 0.36

Standard Recovery Diode Die



Junction Carrier Quantities

Basic Part No.	Quantity Per Carrier
IR180	256
IR210	196
IR230	196
IR250	190
IR350	100
IR480	49
IR485	49



Die

Part No.	A	B	E	F
IR180SG	(0.180) 4.60	(0.134) 3.40	(0.112) 2.87	(0.131) 3.35
IR230SG	(0.230) 5.84	(0.190) 4.83	(0.159) 4.00	(0.171) 4.04
IR480SG	(0.480) 12.19	(0.404) 10.26	(0.286) 7.26	(0.350) 9.02
IR485BG	(0.480) 12.19	(0.404) 10.26	(0.286) 7.26	(0.383) 9.73

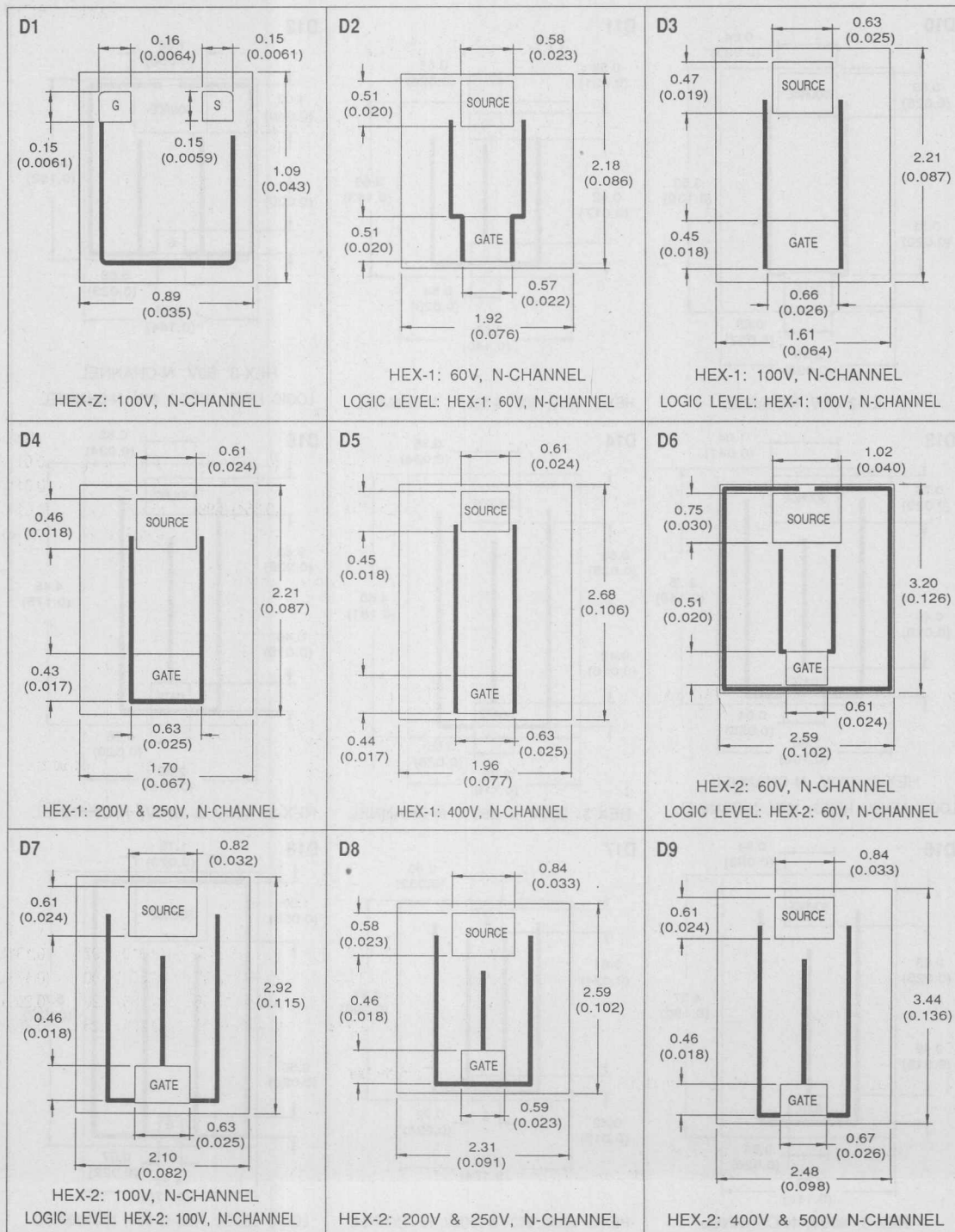
Please note that junctions are only sold in multiples of the carriers shown above.

Corner Gate Thyristor Die

### Chip Tray Capacity by Die Size

HEXFET DIE	HEX-Z	HEX-1	HEX-2	HEX-3	HEX-4	HEX-5	HEX-6
Chip Tray Capacity	400	140	96	45	35	16	15

# HEXFET Die Outlines



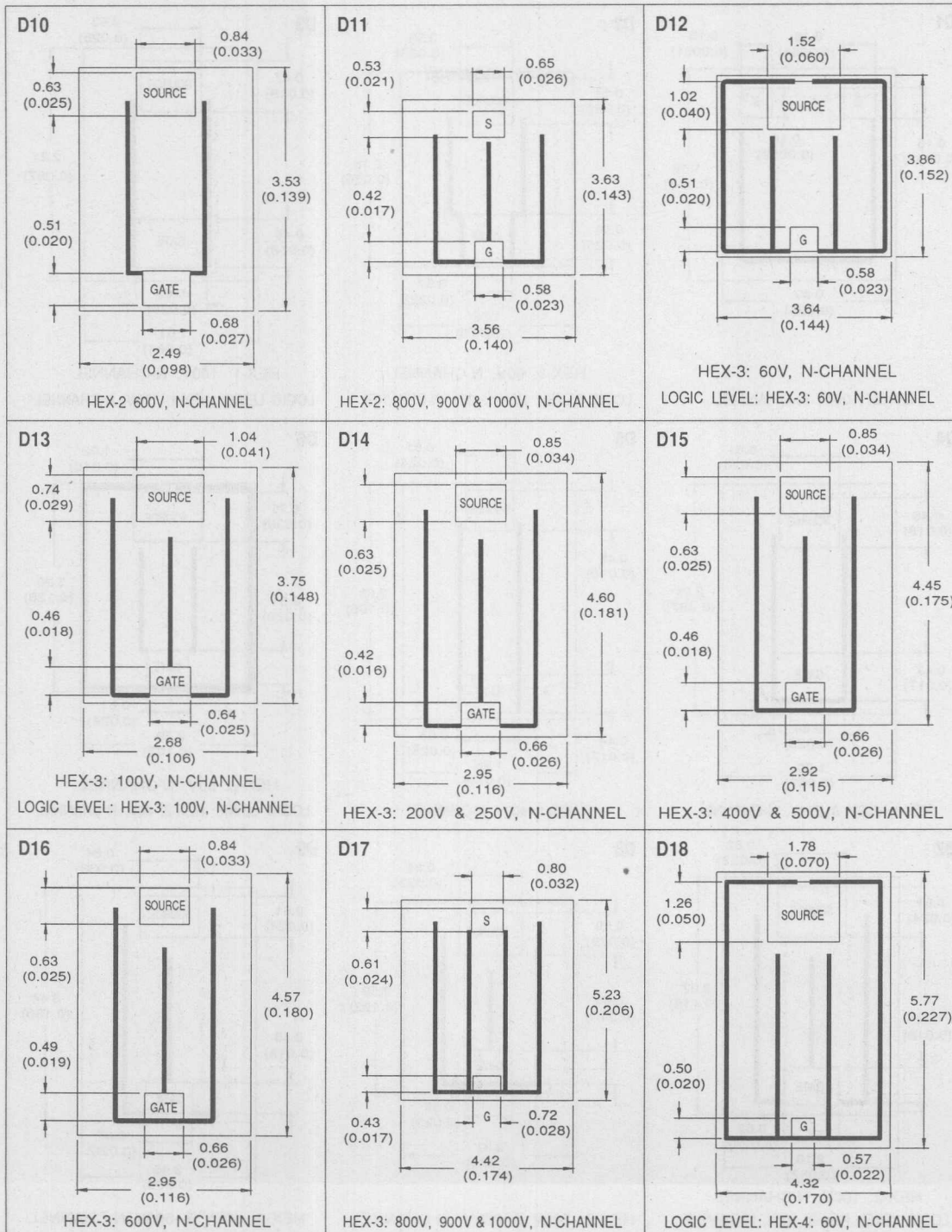
SEE NOTES FOR TOLERANCES AND ALL OTHER INFORMATION

ALL DIMENSIONS SHOWN IN MILLIMETERS (INCHES)

Die Outlines J-59



# HEXFET Die Outlines

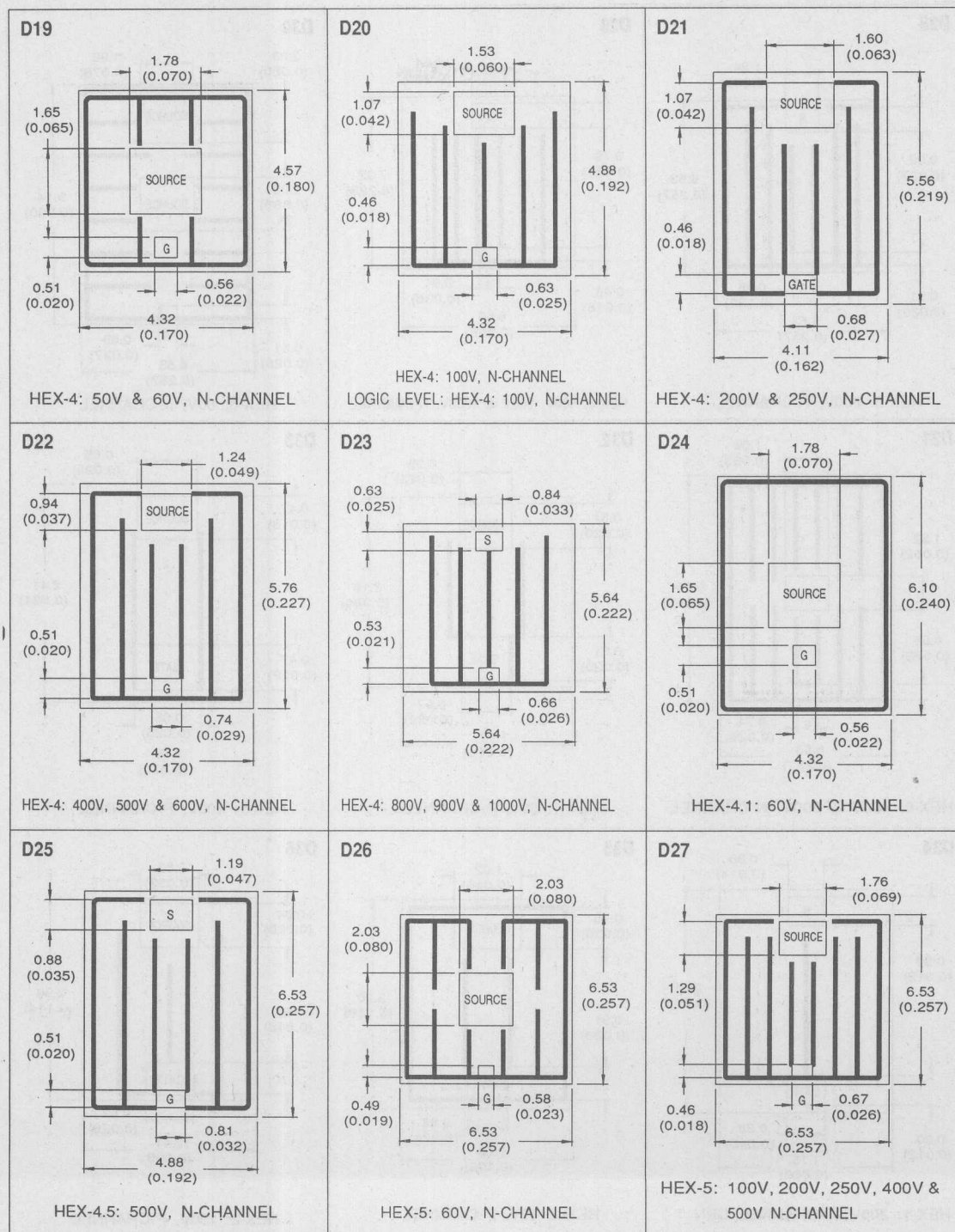


SEE NOTES FOR TOLERANCES AND ALL OTHER INFORMATION

ALL DIMENSIONS SHOWN IN MILLIMETERS (INCHES)

Die Outlines J-60

# HEXFET Die Outlines

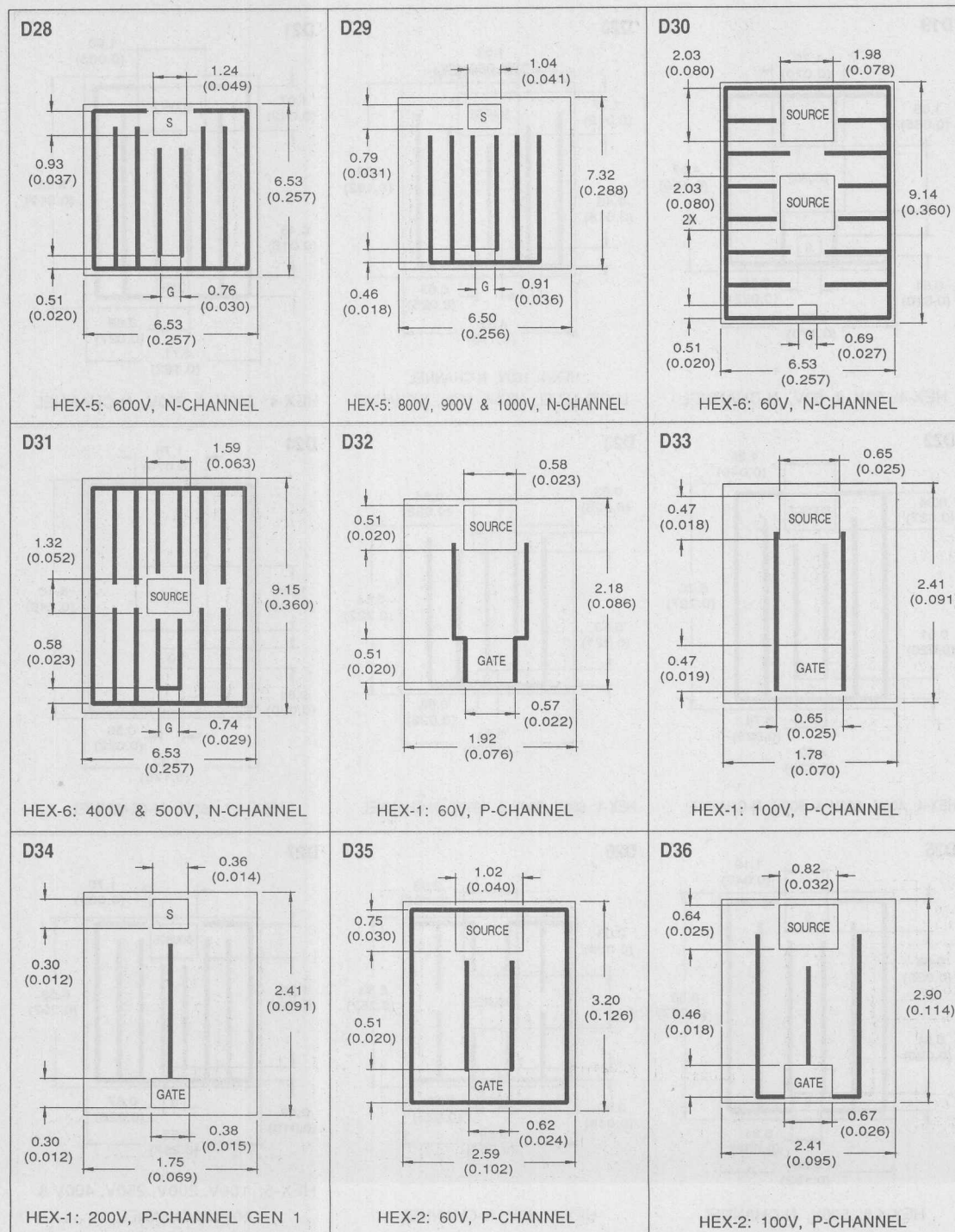


SEE NOTES FOR TOLERANCES AND ALL OTHER INFORMATION

ALL DIMENSIONS SHOWN IN MILLIMETERS (INCHES)

Die Outlines J-61

# HEXFET Die Outlines

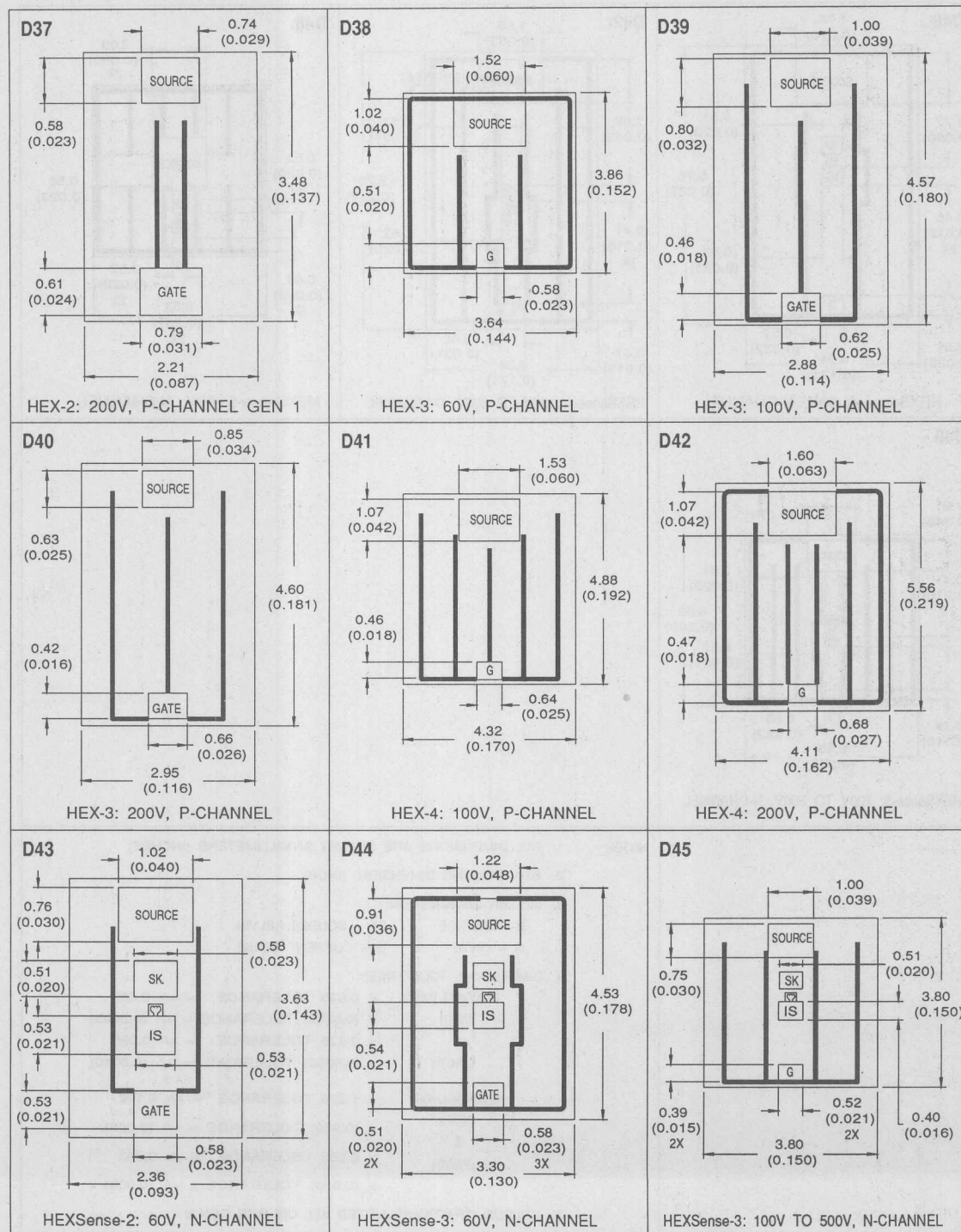


SEE NOTES FOR TOLERANCES AND ALL OTHER INFORMATION

ALL DIMENSIONS SHOWN IN MILLIMETERS (INCHES)

Die Outlines J-62

# HEXFET Die Outlines



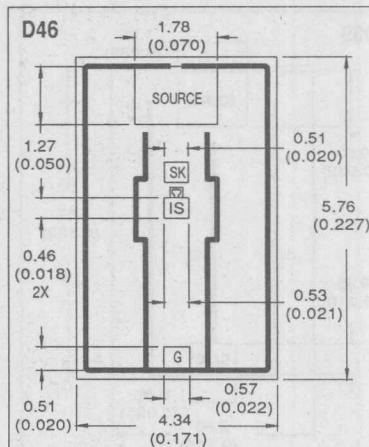
SEE NOTES FOR TOLERANCES AND ALL OTHER INFORMATION

ALL DIMENSIONS SHOWN IN MILLIMETERS (INCHES)

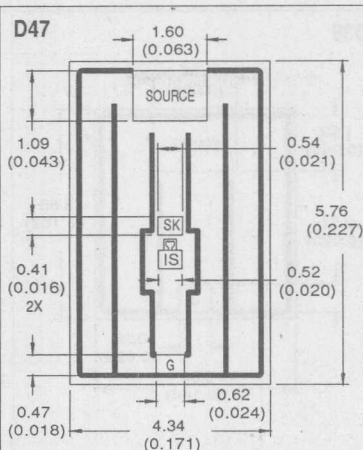
Die Outlines J-63



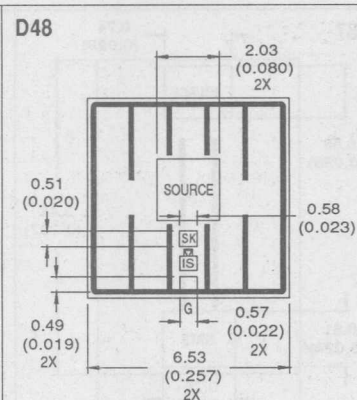
# HEXFET Die Outlines



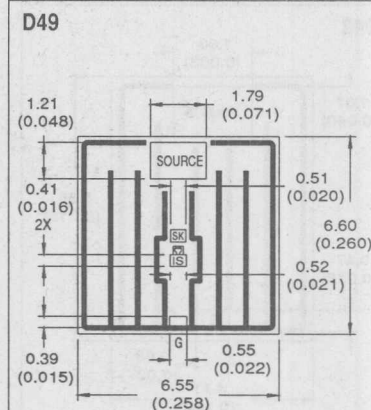
HEXSense-4: 60V, N-CHANNEL



HEXSense-4: 100V TO 500V, N-CHANNEL



HEXSense-5: 60V, N-CHANNEL



HEXSense-5: 100V TO 500V, N-CHANNEL

NOTES: 1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES)

2. CONTROLLING DIMENSION: (INCH).

3. LETTER DESIGNATION:

S = SOURCE SK = SOURCE KELVIN

G = GATE IS = CURRENT SENSE

4. DIMENSIONAL TOLERANCES:

BONDING PADS: < 0.635 TOLERANCE = +/- 0.013  
 WIDTH < (0.0250) TOLERANCE = +/- (0.0005)  
 & > 0.635 TOLERANCE = +/- 0.025  
 LENGTH > (0.0250) TOLERANCE = +/- (0.0010)

OVERALL DIE: < 1.270 TOLERANCE = +/- 0.102  
 WIDTH < (0.050) TOLERANCE = +/- (0.004)  
 & > 0.635 TOLERANCE = +/- 0.203  
 LENGTH > (0.050) TOLERANCE = +/- (0.008)

5. UNLESS OTHERWISE NOTED ALL DIE ARE GEN III

## DATA BOOKS

CIC-1	CONTROL INTEGRATED CIRCUITS
DHP-1	DISCRETE HIGH POWER SEMICONDUCTORS, DIODES, THYRISTORS
GSP-1	GOVERNMENT AND SPACE PRODUCTS DESIGNER'S MANUAL
HDM-1, VOL. 1	HEXFET DESIGNER'S MANUAL - APPLICATION NOTES & RELIABILITY DATA
HDM-1, VOL. 3	HEXFET DESIGNER'S MANUAL (D-PAK,SMD-220,SOT-89,SO-8,SOT-223,TO-220 FULLPAK, TO-247 FULLPAK, HEXDIPS, I-PAK, TO-220 & TO-247
IGBT-3	IGBT DESIGNER'S MANUAL, INSULATED GATE BIPOLAR TRANSISTOR
MPIC-8	MICROELECTRONIC RELAY DESIGNER'S MANUAL
SDM-1	SCHOTTKY DIODE DESIGNER'S MANUAL
SFC-97	POWER SEMICONDUCTOR 1996 PRODUCT DIGEST
SMP-1	SURFACE-MOUNT POWER SEMICONDUCTORS - A TECHNICAL MANUAL FOR PORTABLE ELECTRONICS CIRCUIT DESIGNERS

## APPLICATION NOTES

GBAN-HEX-1	THE HEX-PAK IR's HIGH POWER HEXFET MODULE
GBAN-PVI-1	THE PVI-A VERSATILE NEW CIRCUIT ELEMENT
GBAN-AP-1	THE ADD A PAK POWER MODULE EXPLAINED
AN-100	AC LOAD SWITCHING WITH CHIPSWITCH MICROELECTRONIC RELAYS
AN-101	CHOOSING AN INPUT RESISTOR FOR A MICROELECTRONIC RELAY
AN-102	INDUCTIVE LOAD SWITCHING CHARACTERISTICS OF THE CHIPSWITCH
AN-103	THERMAL EVALUATION OF CHIPSWITCH IN PROGRAMMABLE CONTROLLERS
AN-104	THE PHOTOVOLTAIC RELAY: A NEW SOLID STATE CONTROL DEVICE
AN-105	ADVANTAGES OF PHOTOVOLTAIC RELAYS IN MULTIPLEXERS
AN-106	THE SWITCHING LIFE OF BOSEFET PHOTOVOLTAIC RELAYS
AN-107	SHORT CIRCUIT WITHSTAND CAPABILITY OF THE PHOTOVOLTAIC RELAY
AN-305	CALCULATION OF RECTANGULAR WAVEFORM CURRENT RATING OF THYRISTORS
AN-309	SCRS - THEIR PARAMETERS, SPECIFICATIONS, RATINGS, AND CHARACTERISTICS
AN-312	SELECTION OF SCR'S FOR SINGLE PHASE DC MOTOR DRIVES
AN-701	THERMAL AND HEAT TRANSFER DATA FOR HEAT EXCHANGERS
AN-804	DETERMINATION OF AVAILABLE FAULT CURRENT FOR SEMICONDUCTOR FUSING
AN-930A	APPLYING INTERNATIONAL RECTIFIER POWER MOSFETS
AN-931D	CUSTOM ASSEMBLY OF HEXFET DICE
AN-932	RELIABILITY...THE KEY TO IR'S TO-220 DEVICES
AN-933	SWITCHING TRANSIENTS IN HIGH-FREQUENCY, HIGH-POWER CONVERTERS USING POWER MOSFETS
AN-934B	THE HEXFETS INTEGRAL BODY DIODE - ITS CHARACTERISTICS AND LIMITATIONS
AN-935	BIPOLAR POWER TRANSISTOR CHIPS FOR HYBRID ASSEMBLIES
AN-936A	THE DO'S AND DON'TS OF USING POWER HEXFETS
AN-937A	GATE DRIVE CHARACTERISTICS AND REQUIREMENTS FOR POWER MOSFETS
AN-939A	A UNIVERSAL 100KHZ POWER SUPPLY USING A SINGLE HEXFET
AN-940B	AN INTRODUCTION TO INTERNATIONAL RECTIFIER P-CHANNEL HEXFETS
AN-941B	A CHOPPER FOR MOTOR SPEED CONTROL USING PARALLEL CONNECTED POWER HEXFETS
AN-942	SIMPLIFIED HEXFET POWER DISSIPATION AND JUNCTION TEMPERATURE CALCULATION SPEEDS HEATSINK DESIGN
AN-943	THE IMPACT OF HEXFETS ON PRODUCT PROFITABILITY: AN ECONOMIC DISCUSSION OF POWER MOSFETS
AN-944A	A NEW GATE CHARGE FACTOR LEADS TO EASY DRIVE FOR POWER MOSFET CIRCUITS
AN-945	UNDERSTANDING HEXFET CURRENT RATINGS
AN-946B	HIGH VOLTAGE, HIGH FREQUENCY SWITCHING USING A CASCADE CONNECTION OF HEXFET AND BIPOLAR TRANSISTOR
AN-947	UNDERSTANDING HEXFET SWITCHING PERFORMANCE
AN-948A	LINEAR POWER AMPLIFIER USING COMPLEMENTARY HEXFETS
AN-949B	CURRENT RATINGS, SAFE OPERATING AREA AND HIGH FREQUENCY SWITCHING PERFORMANCE OF POWER MOSFETS
AN-950B	TRANSFORMER-ISOLATED HEXFET DRIVER PROVIDES VERY LARGE DUTY CYCLE RATIOS
AN-952A	A MULTIPLE OUTPUT, OFF-LINE SWITCHING POWER USING HEXFETS
AN-953	MORE POWER FROM HEXDIPS
AN-954A	SPICE 2 COMPUTER MODELS FOR HEXFETS
AN-955	PROTECTING POWER MOSFETS FROM ESD
AN-956A	USING SURFACE MOUNTED DEVICES
AN-957B	MEASURING HEXFET CHARACTERISTICS
AN-958	HEXFET POWER MOSFET AVALANCHE RATINGS
AN-959B	AN INTRODUCTION TO THE HEXSENSE CURRENT-SENSING DEVICE
AN-960A	A 250 WATT CURRENT-CONTROLLED SMPS WITH SYNCHRONOUS RECTIFICATION
AN-961B	USING HEXSENSE CURRENT-SENSE HEXFETS IN CURRENT-MODE CONTROL POWER SUPPLIES
AN-962	A 70W BOOST-BUCK (CUK) CONVERTER USING HEXSENSE CURRENT-MODE CONTROL
AN-963	230 WATT BUCK REGULATOR WITH HEXSENSE RECTIFIERS, STANDARD RECOVERY, FAST
AN-964D	CHARACTERISTICS OF HEXFET III DICE

## APPLICATION NOTES, cont.

AN-965A	A 500W 100 KHZ RESONANT CONVERTER USING HEXFETS
AN-966A	HEXFET III: A NEW GENERATION OF POWER MOSFETS
AN-967A	USING HEXFET III IN PWM INVERTERS FOR MOTOR DRIVES AND UPS SYSTEMS
AN-968	SELECTING AND DESIGNING IN THE RIGHT SCHOTTKY
AN-969	ECONOMIC, HIGH PERFORMANCE, HIGH EFFICIENCY ELECTRONIC IGNITION WITH AVALANCHE-RATED HEXFETS POST REGULATORS
AN-970	HEXFET POWER MOSFETS IN LOW DROPOUT LINEAR POST-REGULATORS
AN-971	SWITCHING CHARACTERISTICS OF LOGIC LEVEL HEXFET POWER MOSFETS
AN-972B	THERMAL AND MECHANICAL CONSIDERATIONS FOR FULLPAK APPLICATIONS
AN-973	HEXFETS IMPROVE EFFICIENCY, EXPAND LIFE OF ELECTRONIC LIGHTING BALLASTS
AN-975B	SPICE COMPUTER MODELS FOR HEXFET POWER MOSFETS
AN-976A	UNDERSTANDING AND USING POWER MOSFET RELIABILITY DATA
AN-977	AN INTRODUCTION TO HEXFET QUALITY AND RELIABILITY
AN-978B	HI-SPEED, HI VOLTAGE IC DRIVER FOR HEX OR IGBT BRIDGE CIRCUIT-IR2110
AN-980	IGBT VS HEXFET POWER MOSFETS FOR VARIABLE
AN-983A	IGBT CHARACTERISTICS AND APPLICATIONS (COMPANION TO AN-990)
AN-984	PROTECTING IGBTs AGAINST SHORT CIRCUIT
AN-985B	IR2130: A SIX-OUTPUT, HIGH VOLTAGE MOS GATE DRIVER (IR2130, IR2131, IR2132)
AN-986	ESD TESTING OF MOS-GATED POWER TRANSISTORS (IR2110)
AN-987	UTILIZING SCHOTTKY RECTIFIER DIE IN ASSEMBLY
AN-988	INTRODUCTION TO 600V ADD-A-PAK & INT-A-PAK IGBT MODULES
AN-989	THE HEXFRED ULTRAFast DIODE IN PRW SWITCHING CIRCUITS
AN-990	APPLICATION CHARACTERIZATION OF IGBT's (COMPANION TO AN-983)
AN-993	UTILIZING HEXFRED ULTRA-FAST RECOVERY DIODE DIE IN ASSEMBLY
AN-994A	MAXIMIZING EFFECTIVENESS OF YOUR SMD ASSEMBLIES, IR2110, IR2121, IR2125
AN-995A	ELECTRONIC BALLASTS USING THE COST-SAVING IR2155 DRIVER

## DESIGN TIPS

DT 92-1B	SOLVING NOISE PROBLEMS IN HIGH POWER, HIGH FREQUENCY PIC DRIVEN POWER STAGES, IR2110
DT 92-2A	HIGH CURRENT BUFFER FOR MOS-GATE DRIVERS, IR2110
DT 92-3B	USING STD MOS GATE DRIVERS TO GENERATE NEGATIVE GATE BIAS FOR MOSFETS AND IGBT'S, IR2110
DT 92-4A	SIMPLE HIGH SIDE DRIVE PROVIDES FAST SWITCHING AND CONTINUOUS ON TIME IR2125
DT 92-5	SPICE MODELS FOR MOS-GATED POWER DEVICES
DT 92-6A	CURRENT SENSING WITH THE IR2130
DT 93-1	TESTING HIGH-POWER SCRs AND DIODES
DT 93-2	IR6000 DESIGN TIPS-DRIVING FILAMENTS, BRIDGE APPLICATIONS
DT 93-3	500V IGBTs REPLACE MOSFETS AT LOWER COST
DT 93-4	CURRENT CAPABILITY OF TO-220 PACKAGE
DT 93-6B	MINIATURIZATION OF THE POWER ELECTRONICS FOR MOTOR DRIVES
DT 94-1A	KEEPING THE BOOTSTRAP CAPACITOR CHARGED IN BUCK CONVERTERS, IR2125
DT 94-2	CHOOSING BETWEEN MULTIPLE DISCRETES AND HIGH CURRENT MODULES
DT 94-3A	SIMPLE ELECTRONIC BALLAST USING IR2155 MOS GATE DRIVER, IR2151, IR2152
DT 94-4	TRADE-OFF CONSIDERATIONS BETWEEN EFFICIENCY AND SHORT CIRCUIT CAPABILITY IN IGBTs
DT 94-5A	USING MOS-GATED POWER TRANSISTOR IN AC SWITCH APPLICATIONS
DT 94-6A	PARALLEL OPERATION OF IGBTs
DT 94-7A	LOW GATE CHARGE HEXFETS SIMPLIFY GATE DRIVE AND LOWER COST, IR2112
DT 94-8	REVERSE BATTERY PROTECTION WITH HEXFETS DOUBLES BATTERY LIFE
DT 94-9A	MAXIMIZING THE LATCH IMMUNITY OF THE IR2151 & IR2152 IN BALLAST APPLICATIONS, IR2151, IR2152
DT 94-10A	CHOOSING THE CORRECT DROPPING RESISTOR VALUE FOR THE IR2151/IR2152/ IR2155 MGDS
DT 94-11	3-PHASE BRIDGE DRIVE WITH OVERCURRENT PROTECTION, IR2130
DT 94-12	OPTICALLY ISOLATED GATE DRIVE CIRCUIT
DT 94-13	PUSH PULL DRIVE CIRCUIT
DT 94-14	ISOLATED SCR GATE DRIVE CIRCUIT
DT 94-15A	DESIGN CHECK LIST FOR IR21XX MGDS
DT 94-16	SYNCHRONOUS RECTIFIERS IMPROVE EFFICIENCY IN LOW OUTPUT VOLTAGE FORWARD CONVERTERS
DT 94-17	THERMAL RESISTANCE CHARACTERIZATION FOR NEW SURFACE MOUNT DEVICES
DT 95-1	REPLACING MECHANICAL RELAYS WITH IR'S PTB412L MICROELECTRONIC RELAY IN FAX/MODEM DESIGNS
DT 95-2	IR'S NEW FIFTH GENERATION POWER MOSFETS: A REPLACEMENT GUIDE
DT 95-3A	ULTRA-COMPACT FLUORESCENT BALLASTS USING THE IR51XXX HYBRIDS, IR2151

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## SELECTION GUIDES

IR POWER PRODUCTS REPLACEMENT GUIDE  
CPRPG-1 CONSOLIDATED POWER PROD. REPLACEMENT GUIDE  
WESTINGHOUSE-IR POWER PRODUCTS REPLACEMENT GUIDE  
MOTOROLA-IR POWER PRODUCTS REPLACEMENT GUIDE  
GE-IR POWER PRODUCTS REPLACEMENT GUIDE  
SIEMENS-IR POWER PRODUCTS REPLACEMENT GUIDE  
HEXFET CROSS REFERENCE  
DIODE DASH CROSS REFERENCE  
GE/RCA TO IR HEXFET CROSS-REFERENCE 25/35 AMP THREE-PHASE  
25/35 AMP THREE-PHASE BRIDGE CROSS REFERENCE GUIDE  
SCHOTTKY CROSS REFERENCE  
HIGH POWER MATRIX CROSS REFERENCE  
DIODES & RECTIFIERS CROSS REFERENCE  
PMCRF-2 - HIGH POWER MATRIX CROSS REFERENCE  
E4007-STANDARD AND FAST RECOVERY DO-4/DO-5 DIODES CROSS REFERENCE  
IR POWER PRODUCTS APPLICATION GUIDE

## TECHNICAL PAPERS

ER90-1	HIGH VOLTAGE CHIPSET FOR OFFLINE SYSTEM DESIGNS
ER90-2	RISC SLUGFEST - IS MARKETING MUSCLE GETTING MORE IMPORTANT THAN CHIP PERFORMANCE?
ER90-3	NEW HIGH-VOLTAGE BRIDGE DRIVER SIMPLIFIES PWM INVERTER DESIGN
ER90-4	NEXT GENERATION HIGH PERFORMANCE CMOS/BIPOLAR/DMOS H-SWITCH
ER91-1	"TRENDS IN INTEGRATED POWER AND LOGIC" (POWER INTEGRATED CIRCUITS)
ER91-2	POWER IC DRIVER PROTECTS MOSFETs AND IGBTs, OPERATES TO 500V
ER91-3	A 600V INTERFACE IC FOR THREE-PHASE BRIDGE CIRCUITS
ER92-1	"MGDS: HIGH PERFORMANCE INTEGRATED DRIVERS FOR POWER MOSFETs & IGBTs"
ITN-100	GENERATION II ADD-A-PAK MODULES
ITN-101	ADD-A-PAK QUALITY AND RELIABILITY
ITN-102	ADD-A-PAK MODULE MOUNTING INSTRUCTIONS
TP-92	PARALLELING OF POWER MOSFETs FOR HIGHER POWER OUTPUT
TPAP-1	ACCURATE JUNCTION TEMPERATURE CALCULATION OPTIMIZES IGBT SELECTION FOR MAXIMUM PERFORMANCE AND RELIABILITY
TPAP-2	GATE DRIVE CONSIDERATIONS FOR IGBT MODULES
TPAP-3	A DISCUSSION ON IGBT SHORT CIRCUIT BEHAVIOR AND FAULT PROTECTION SCHEMES
TPAP-4	IGBT FAULT CURRENT LIMITING CIRCUIT
TPAP-5	SNUBBER CONSIDERATIONS FOR IGBT APPLICATIONS
TPAP-6	SWITCHING VOLTAGE TRANSIENT PROTECTION SCHEMES FOR HIGH CURRENT IGBT MODULES
TPAP-7	AN ALGORITHM FOR THE SELECTION OF THE OPTIMUM POWER DEVICE FOR THE ELECTRIC VEHICLE PROPULSION
PMD-1-E3	THERMAL CONSIDERATIONS IN THE APPLICATION OF SILICON RECTIFIER & CONTROLLED RECTIFIER
PMD-1-E14	THRESHOLD VOLTAGE (VTO) AND SLOPE RESISTANCE (RT) FOR POWER DIODES AND TRYRISTORS
PMD-1-E17	RATINGS AND CHARACTERISTICS OF POWER MODULES
SMP-1-345	REVERSE BATTERY PROTECTION WITH HEXFETs DOUBLES BATTERY LIFE
SMP-1-347	SYNCHRONOUS RECTIFIERS IMPROVE EFFICIENCY IN LOW OUTPUT VOLTAGE FORWARD CONVERTERS
SMP-1-351	THERMAL RESISTANCE CHARACTERIZATION FOR NEW SURFACE MOUNT DEVICES
UPS-2-85	A SIMPLE TOOL FOR INTERACTIVE DESIGN OF INVERTERS
PAPER # 001	"OPTIMIZING NEW MOSFET TECHNOLOGY FOR SPECIFIC APPLICATIONS"
PAPER # 002	"NEXT GENERATION POWER SEMICONDUCTORS FOR WIRELESS SYSTEMS"
PAPER # 003	"DESIGN & IMPLEMENTATION OF COMPACT, PLUG & PLAY POWER AND DRIVE" AND DRIVE SOLUTION FOR AC INDUCTION MOTORS"
PAPER # 004	"ACCURATELY COMPARING THE IN-APPLICATION PERFORMANCE OF IGBTs"